Illinois Environmental Protection Agency · P.O. Box 19276, Springfield, IL 62794-9276

MEMORANDUM

DATE: December 12, 1990

TO: Cleanup Objectives Team

FROM: Kevin D. Lesko, DLPC, RCRA Unit KDL

SUBJECT: Fansteel, Inc.
LPC # 097125008 -- Lake County
ILD005130786
RCRA Closure Log # C-378

Fansteel, Inc. is a manufacturer of heat resistant metal products. They have two above ground hazardous waste storage tanks undergoing RCRA closure. Cleanup objectives were established on March 9, 1989 (see Attachment A). Since that time Fansteel has conducted additional sampling and has discovered contamination down to 20 feet (see Table 1). Groundwater was encountered at 11 feet, however no groundwater samples were collected. Although not listed in Table 1, the following constituents were also detected:

PARAMETER	RANGE (ppb)
4 - Bromofluorobezene	695 - 723
1,4 - Dichlorobutane	607 - 3032

Fansteel has requested that the Agency provide revised cleanup objectives for the site. Groundwater and revised soil cleanup objectives are requested for the following parameters:

- Lead
- Cadmium - Methylene Chloride - Acetone
- Chloroform
- 1,1,1 Trichloroethane
- Carbon Tetrachloride
- Trichloroethylene
- Benzene
- Tetrachloroethylene
- Toluene
- Chlorobenzene
- Ethylbenzene
- Total Xylene
- 4 - Bromofluorobezene *
- 1,4 - Dichlorobutane *

* Soil cleanup objectives for these parameters were not established previously.

KDL

Attachments

Request for Cleanup Objectives Review

Site Name: FANSTEEL, INC.

Location: NORTH CHICAGO, LAKE COUNTY

Date Submitted: DECEMBER 12, 1990 Decision Due Date: JANUARY 18, 1991

Contact Person: KEVIN LESKO Phone: 29803

Section Manager Signature Lawrence W. Eastep [illegible] 12-11

Type of Project: (closure, cleanup, etc.) CLOSURE OF HAZARDOUS WASTE TANK STORAGE AREA

Media for which cleanup criteria are being requested: SOIL AND GROUNDWATER

Current site activities, degree of public access: MANUFACTURE OF REFRACTORY METAL POWDERS, INCLUDING ALLOYS, AND REFRACTORY METAL TUBE, SHEET, BAR, ROD, AND WIRE. PUBLIC ACCESS LIMITED.

Proposed site activities/access after cleanup: SAME AS PRESENT, BUT WILL ONLY STORE HAZARDOUS WASTE FOR LESS THAN 90 DAYS.

Potentially exposed populations: WORKERS

Potentially exposed environments, surface water, fish and wildlife, vegetation, etc.:

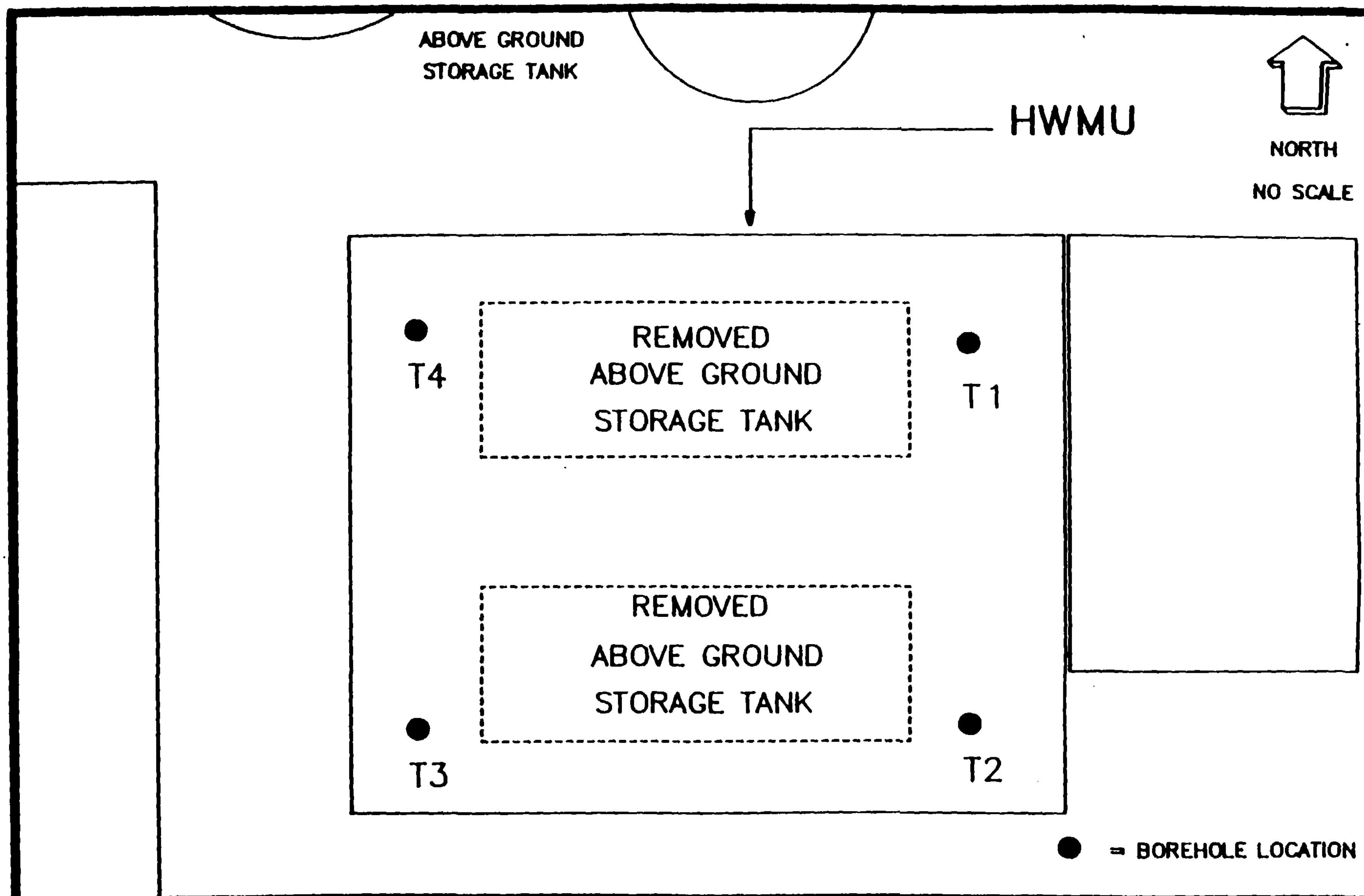
SOIL, GROUNDWATER

Potential dispersion pathways, prevailing winds, direction of groundwater flow:

GROUNDWATER DIRECTION UNKNOWN.

Proposed cleanup techniques; removal, treatment, containment, etc.: NO WRITTEN PROPOSALS YET. THEY HAVE INDICATED THE ~~[illegible]~~ POSSIBILITY OF USING SOIL VAPOR EXTRACTION AND SORCE REMOVAL FOR THE METALS CONTAMINATION

TK:ds:1279E/1;sp



CARLSON
KNIGHT
KUDRNA, Inc.

549 West Randolph Street
Chicago, Illinois 60606
(312) 346-2140

FIGURE ONE
FANSTEEL

TABLE ONE

FANSTEEL
ANALYTICAL RESULTS

	T1A	T1B	T1C	T1D	T2A	T2B	T2C	T2D	T3A	T3B	T3C	T3D	T4A	T4B	T4C	T4D	CLEANUP OBJECTIVE**
DEPTH (feet)	4	9	14	19	4	9	14	19	4	9	14	19	4	9	14	19	
pH	6.0	6.0	6.0	7.0	6.0	6.0	6.0	7.0	6.0	6.0	6.0	7.0	5.0	6.0	6.0	6.5	
Benzene																	5.0
Toluene					746												2,000
Ethylbenzene										176							680
Xylene					963		162			726			301	273	361		440
1,1,1-Trichloroethane					872		692		312	629		630	532	522	621	609	200
Methylene Chloride																	0.19
Carbon Tetrachloride																	5.0
Trichloroethylene		724	1,600	422	68,417	18,656		814	14,123	24,676	503			253			5.0
Tetrachloroethylene		9.8	5.6		10,376	1,168	3.6	10.6		1,706			3.6		6.9	5.5	0.80
Chlorobenzene																	60
Acetone																	16,600
Chloroform	16.1	16.0	16.1	13.5	286	25.5	15.2	25.1		27.1	13.6		26.8	33.8	20.5	12.5	0.19
Lead*					2,970	68											50
Cadmium*					160												10

All values reported in parts per billion (ppb)

Only those results above laboratory detection limits are reported in this table.

* Extraction Procedure Toxicity (EP TOX)

** Cleanup objectives as specified in IEPA letter to Fansteel dated February 13, 1990.

ATTACHMENT A

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

MEMORANDUM

→ ALD

DATE: March 9, 1989

TO: Coordinated Permit Review Committee/Cleanup Objectives Team*

FROM: Tom McSwiggin Tom McSwiggin

SUBJECT: Fansteel, Inc., North Chicago

On February 28, 1989, CROPA reviewed and accepted a COT recommendation for cleanup objectives for soil at a hazardous waste storage tank area at Fanstell, North Chicago. A copy of the COT recommendation is attached.

CROPA also recommends that following the cleanup of the soil in this area that measures be implemented to prevent future contamination as the area will be returned to use as a waste storage tank area. The use of a concrete floor and curbing would be a suggestion in keeping with the CROPA recommendation.

Acceptable Detection Limits have been set by CROPA for those substances where health or environmentally based cleanup objectives are below commonly attainable analytical detection limits. The stated cleanup objectives remain the goals; however, the Agency will accept analyses as proof of acceptable cleanup if they: show no detection, have a detection limit at, or below, the Acceptable Detection Limit, and are consistent with SW 846 quality assurance criteria.

TGM:mjm

Attachment

cc: Jim Park
Amy Dragovich

*CROPA	COT
Tim Kluge	Tim Kluge
Bill Busch	Bruce Yurdin
Joe Svoboda	A. G. Taylor
Jim O'Brien	Rick Cobb
Roger Selburg	Ricky Nimmons
Charles Bell	Paul Purseglove
Don Sutton	Ralph Foster
Larry Eastep	Tom Hornshaw
Glenn Savage	Connie Sullinger
Jim Frank	Les Morrow
Terry Sweitzer	Tracey Virgin
Miles Zamco	

February 17, 1989

DRAFT RECOMMENDED CLEANUP OBJECTIVES

Fansteel, Inc.
North Chicago, Lake County

This project was brought before the Cleanup Objectives Team on February 16, 1989. This project concerns a soil cleanup associated with a hazardous waste tank storage area. The company manufactures refractory metal powders, including alloys, refractory tubing, sheet, bar, rod and wire.

The tanks referenced above were used to store waste oil. Sampling results of soil adjacent the tanks indicate high levels of lead, cadmium, and volatile organic chemicals. Groundwater was not encountered during soil testing.

The Cleanup Objectives Team recommends soil cleanup objectives based on drinking water quality criteria due to the close proximity of private drinking water wells in the area. COT recommends the following objectives:

Recommended Soil Cleanup Objectives

Parameter	Objectives (μg/kg)	Decision Basis	ADL (μg/ kg)
Lead	50.0 (1)	MCL	50.0 (1)
Cadmium	10.0 (1)	MCL	2.0 (1)
Methylene Chloride	0.19	AWQC-Fish & Wtr	5.0
Acetone	16,600.0 mg/kg (2)	1/10 96-hr TLm	100.0
Chloroform	0.19	AWQC-Fish & Wtr	0.5
111-Trichloroethane	200.0	MCL	0.3
Carbon Tetrachloride	5.0	MCL	1.2
Trichloroethylene	5.0	MCL	1.2
Benzene	5.0	MCL	2.0
Tetrachloroethylene	0.80	AWQC-Fish & Wtr	0.3
Toluene	2,000.0	Proposed MCLG	2.0
Chlorobenzene	60.0	Proposed MCLG	2.5
Ethylbenzene	680.0	Proposed MCLG	2.0
Total Xylene	440.0	Proposed MCLG	5.0

Footnotes:

(1) EP Tox Procedure
(2) 20X Extract because KOC value is greater than 1,100 ml/g
(MCL) Maximum Contaminant Level
(AWQC-Fish & Wtr) Ambient Water Quality Criteria Fish and Water Consumption
(1/10 96-hr TLm) One-tenth of the 96-hr Median Tolerance Limit
(Proposed MCLG) Proposed Maximum Contaminant Level Goal

RPC:plc

Attachment

Request for Cleanup Objectives Review

Site Name: Fansteel, Inc.

Location: North Chicago, IL -- Lake County

Date Submitted: February 10, 1989 Decision Due Date: March 31, 1989

Contact Person: Amy Dragovich AD Phone: 782-9798

Section Manager Signature Lawrence W Eastep 2-8-89

Type of Project: (closure, cleanup, etc.) Closure of hazardous waste tank storage area.

Media for which cleanup criteria are being requested: Soil

Current site activities, degree of public access: Manufacturer of refractory metal powders, including alloys, and refractory metal tube, sheet, bar, rod and wire. Public acess limited.

Proposed site activities/access after cleanup: Same as present, but will only store hazardous waste for less than 90 days.

Potentially exposed populations: Workers

Potentially exposed environments, surface water, fish and wildlife, vegetation, etc.:
Soil, groundwater

Potential dispersion pathways, prevailing winds, direction of groundwater flow:
Groundwater direction unknown

Proposed cleanup techniques; removal, treatment, containment, etc.: Additional sampling and/ excavation will be done to complete closure.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY MEMORANDUM

DATE February 10, 1989

TO Cleanup Objectives Team

FROM Amy Dragovich, DLPC Permits AD

SUBJECT LPC #0971250008 -- Lake County
Fansteel, Inc.
ILD 005130786
Log #C-378

Site Description and Background: Fansteel, Inc. is a manufacturer of heat resistant metal products. They have an approved closure plan for the hazardous waste tank storage area, which includes two 13,500 gallon cylindrical tanks. The tanks are set above-gradient in an enclosed building with crushed stone floors.

The tanks were used to store waste oil. The waste oil exhibited the characteristics of EP Toxicity for cadmium and lead, and the characteristic of ignitability. Because the waste oil was ignitable, they were also told to include a volatile scan (Method 8240-SW846) in their soil sampling.

They have completed initial soil samples as required by their approved closure plan and have submitted the results so that they can be reviewed and cleanup objectives established. Sampling included six (6) soil samples from the area at three (3) locations (6" and 18" depths).

Sampling results show high levels of lead and cadmium and above detection for several volatile organics.

Would sampling results for the organics meet cleanup objectives COT would set?

ALD:tk:5/12/32

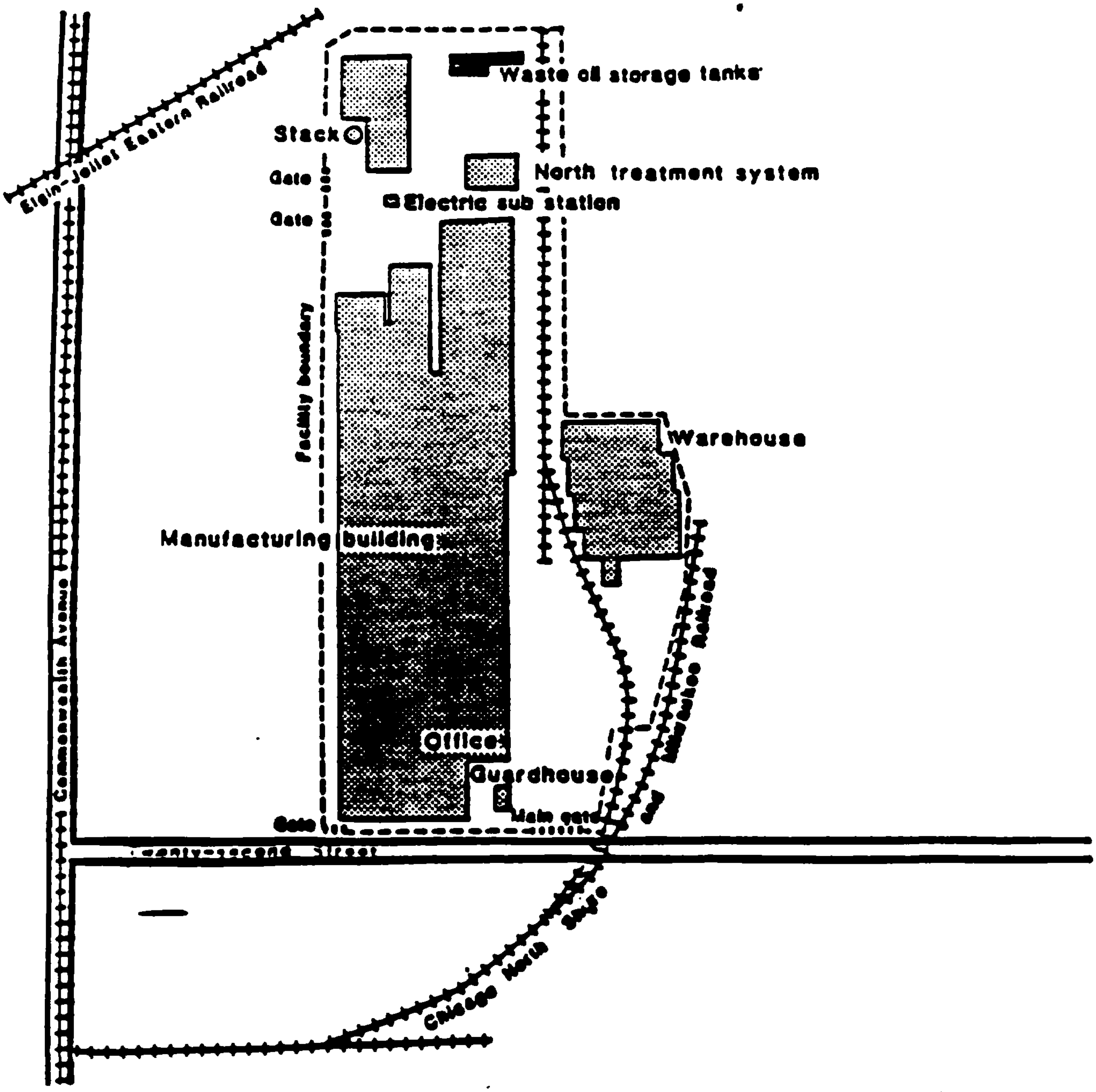
Attachments: Sampling Results
Water Well Locations
Site Map

Chemicals Present On-Site

CAS No. **Air Conc.** **Water Conc.** **Soil Conc.**

ling results for organics g/kg(ppb)	A1 (6")	A2 (18")	B1 (6")	B2 (18")	C1 (6")	C2 (18")
ylene Chloride					57	49
ne			99	95	48	100
roform					87	91
1-Trichloroethane		11	20	97	230	250
on Tetrachloride					22	15
hloroethylene	5200	14,000	73,000	83,000	330,000	320,000
ene				14	9	5
achloroethyene	114	84	120,000	100,000	33,000	41,000
ene	8	10	30	33	23	44
robenzene			8	13		
lbenzene			24	12		
l Xylenes	16	16	72	46		
(mg/l) . Tox)	9.62	12.4	21.2	33.0	0.71	2.23
ium(mg/L) . Tox)	0.247	0.287	0.262	0.277	0.087	0.118

'95/6 sp



ATTACHMENT A

Figure 4. Location of hazardous waste operating unit

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY

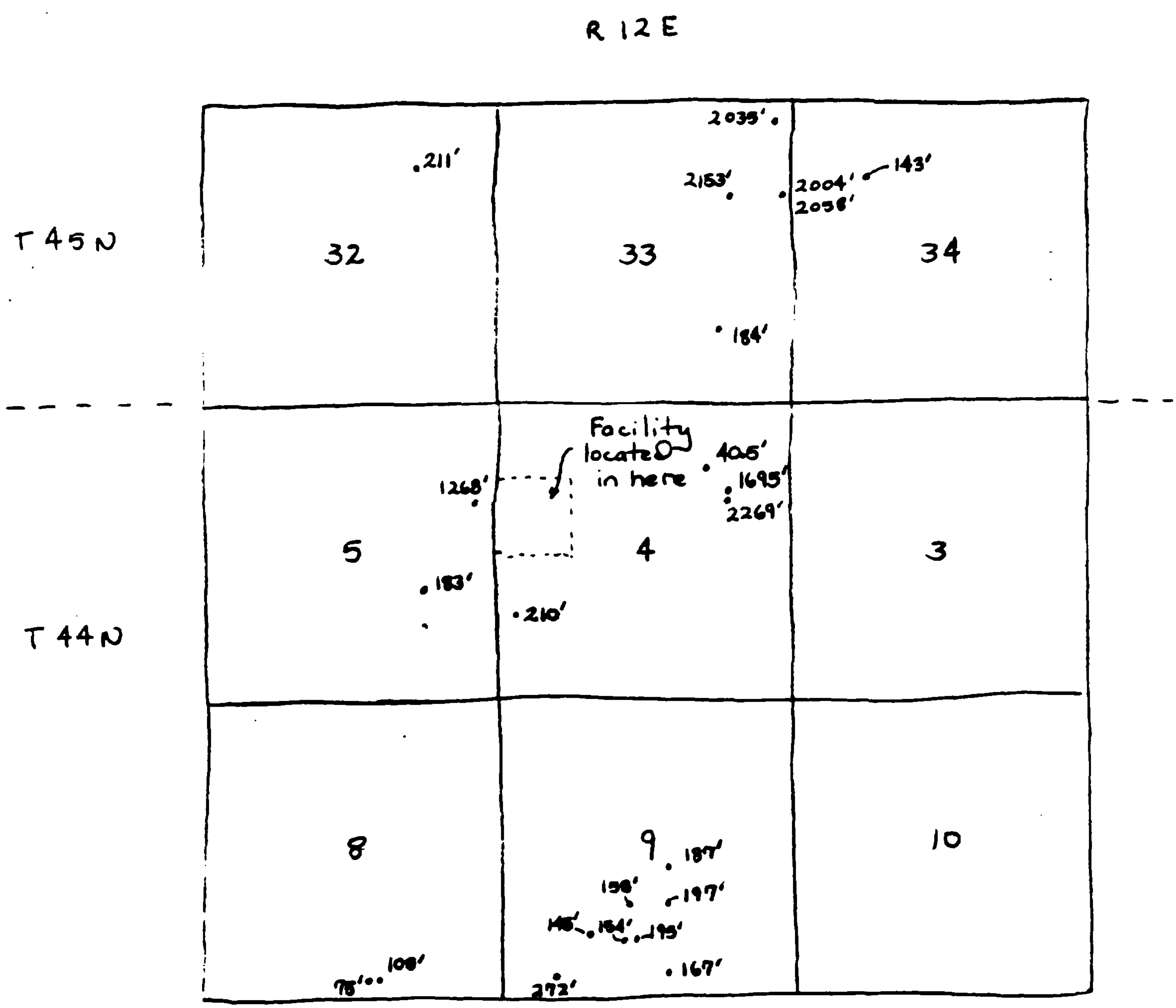
L 532-0357
ADM 39
054-002

Subject: Fansteel

Data: Closure Plan - C-378

Reviewed by: Amy Dragovich Date: 2-2-88

Lake County - Township 45N, Range 12E, Section 32-34
44N, 12E, 3-5, 8-10



No Public Water Wells

SECTION II. PLANT PROCESS AND DISCHARGE DESCRIPTION

a. Present [X] b. Proposed new or changed [ ]	2. Implementation schedule [X]	(Office use only) 2720257

6. Discharge serial no.: 001

State	County	City or Town
3. Illinois	4. Lake	5. North Chicago

7. Latitude __ Degrees __ Min __ Sec N
8. Longitude 87 Degrees 50 Min 38 Sec W

9. Name of waterway at the point of discharge: Municipal Storm Sewer

10. Has application for water quality certification or description of impact been made? If so, give date:

Date: JUN 30 71 (mo day yr)

Check if certificate is attached to form [ ]

Name Issuing Agency: Illinois Environmental Protection Agency

11. Narrative description of activity (include terms of general 4-digit Standard Industrial Classification, and specific manufacturing process)

1. Manufacture of electrical contacts from refractory metals. Processes include powder reduction, ... pressing, sintering, swaging, cutoff and piercing.

2. Manufacture of nonferrous wire, foil and tubing. Processes include drawing, rolling, cleaning, plating.

12. Standard industrial classification number	13. Principal product	14. Amount of principal product produced per day
1. 3699	1. Electrical Contacts	
2. 3356	2. Wire, Foil and Tubing	

15. Principal raw material	16. Amount of principal raw material consumed per day	17. Number of batch discharges per day
1. Oxides of Tungsten	1. Information provided on "Confidential	
2. [illegible]	2. [illegible]	

18. ... discharge	19. Date discharge began	20. Date ...
	[illegible]	mo day yr

... ment practices.

1. [illegible]

2. Separat... cleaning [illegible]

Pr...

1422000014

10. ... quality certification or description of impact been made? If so, give date

Date	Check if certificate is attached to form	Name Issuing Agency
JUN 30 71 (mo day yr)	☐	Illinois ... tion ...

11. Narrative description of activity (include terms of general 4-digit Standard Industrial Classification, and specific manufacturing process)

1. Manufacture of electrical contacts from refractory metals. Processes include powder reduction, powder pressing, sintering, swaging, cutoff, and piercing.

2. Manufacture of nonferrous wire, foil and tubing. Processes include drawing, rolling, cleaning, plating.

12. Standard industrial classification number.	13. Principal product.	14. Amount of principal product produced per day.
1. 3699	1. Electrical Contacts	
2. 3356	2. Wire, Foil and Tubing	

15. Principal raw material.	16. Amount of principal raw material consumed per day.	17. Number of batch discharges per day.
1. Oxides of Tungsten	1. ... on "Confidential	
2. Tantalum	2. ...	

18. ... batch discharge.	19. ... discharge began.	20. ...
	AUG ... 56 (mo day yr)	(mo day yr)

21. ... improvement practices.

1. Recirculation ... for cutoff operations.

2. ... cleaning ... plating solutions.

...

Process ...

1429000014

1

b. Proposed new or changed [ ]

2. ... schedule [X]

Name of corporate boundaries within which the point of discharge is located.

State: a. Illinois

County: 4. Lake

City or Town: 5. North...

... location of the point of discharge

7. Latitude 4 2 Degrees 1 9 Min. 1 9 Sec. N

8. Longitude 8 7 Degrees 5 0 Min. 1 4 Sec. W

9. Name of waterway ...

Municipal Storm Sewer

10. Has application for water quality certification or description of impact been made? If so, give date

Date: JUN 30 71 (mo day yr)

Check if certificate is attached to form [ ]

Name Issuing Agency: Illinois Environmental Protection

11. Narrative description of activity (include terms of general 4-digit Standard Industrial Classification, and specific manufacturing process).

Manufacture of electrical contacts.

Processes include cleaning, plating, welding, brazing, punch presses, ... and powder blending, pressing ... operations.

12. Standard industrial classification number.

3699

13. Principal product.

Electrical Contacts

14. Amount of principal product produced per day.

Information ... on "Con...ial ... Answers ...

15. Principal raw material

16. Amount of principal raw material consumed per day.

17. Number of batch discharges per day.

18. ... per batch discharge

19. Date discharge began.

AUG — 67 (mo day yr)

20. Date discharge will begin.

— — — (mo day yr)

21. ...

Separate ... system for cyanide wastes, ...

Process water discharge - ... gal./day

(Office use only)

2723350

Name of corporate boundaries within which the point of discharge is located

6. Discharge Serial No.

State	County	City or Town
3. Illinois	4. Lake	5. North Chic[illegible]

State the precise location of the point of discharge

7. Latitude 4 2 Degrees 1 9 Min. 1 8 Sec.

8. Longitude 8 7 Degrees 5 2 Min. 2 3 Sec.

9. Name of waterway at the point of discharge

Municipal Storm Sewer

10. Has application for water quality certification or description of impact been made? If so, give date

Date: JUN 30 71 (mo day yr)

Check if certificate is attached to form

Name Issuing Agency: Illinois Environmental Protection

11. Narrative description of activity (include terms of general 4-digit Standard Industrial Classification, and specific manufacturing process)

Manufacture of electrical contacts.

Processes include electropolishing, grinding and mechanical assembly.

12. Standard industrial classification number.

3699

13. Principal product.

Electrical Contacts

14. Amount of principal product produced per day.

Information provided on "Confidential Answers" sheet

15. Principal raw material.

16. Amount of principal raw material consumed per day.

17. Number of batch discharges per [illegible]

4/Year

18. Average gallons per batch discharge.

3000

19. Date discharge began.

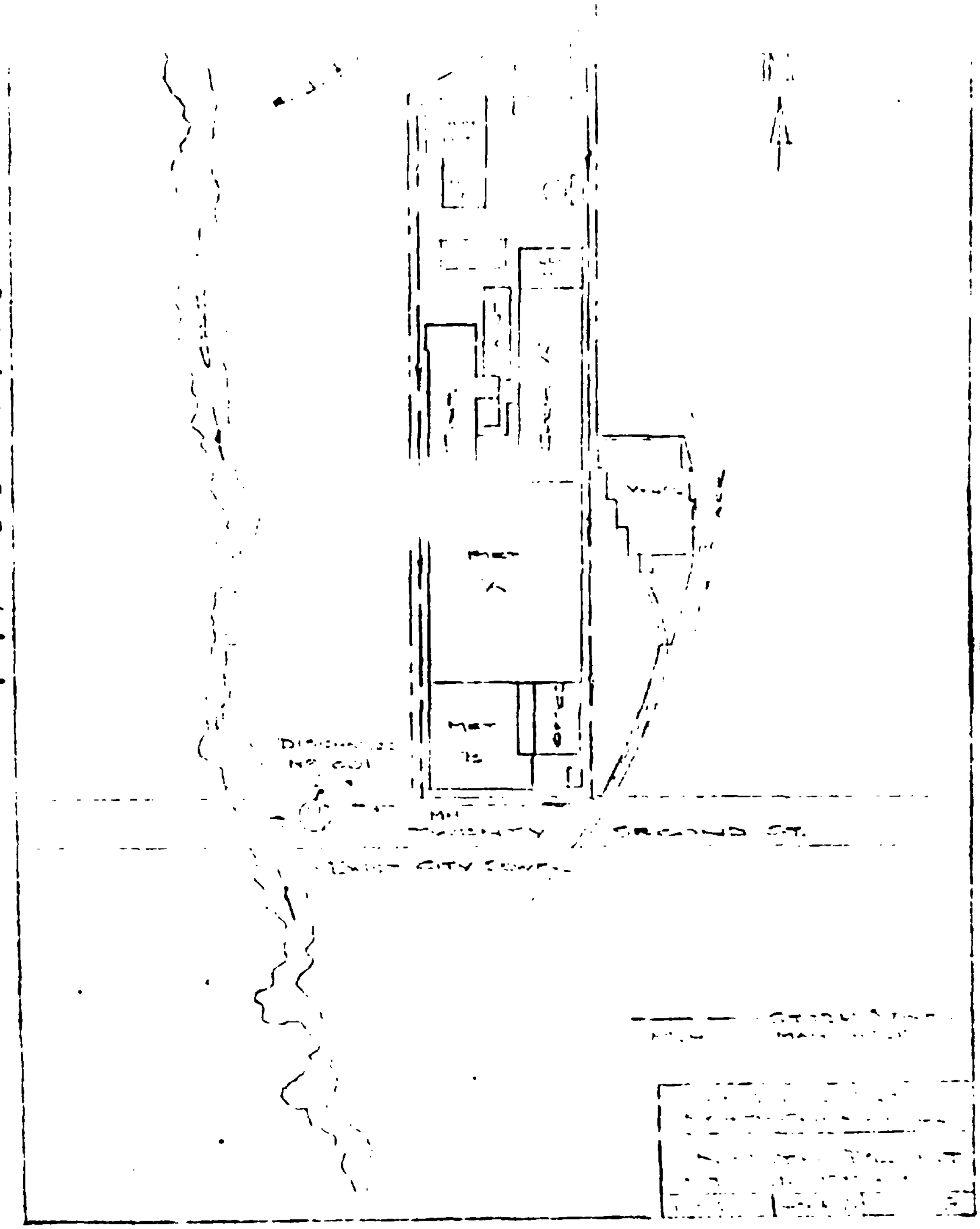
FEB 70 (mo day yr)

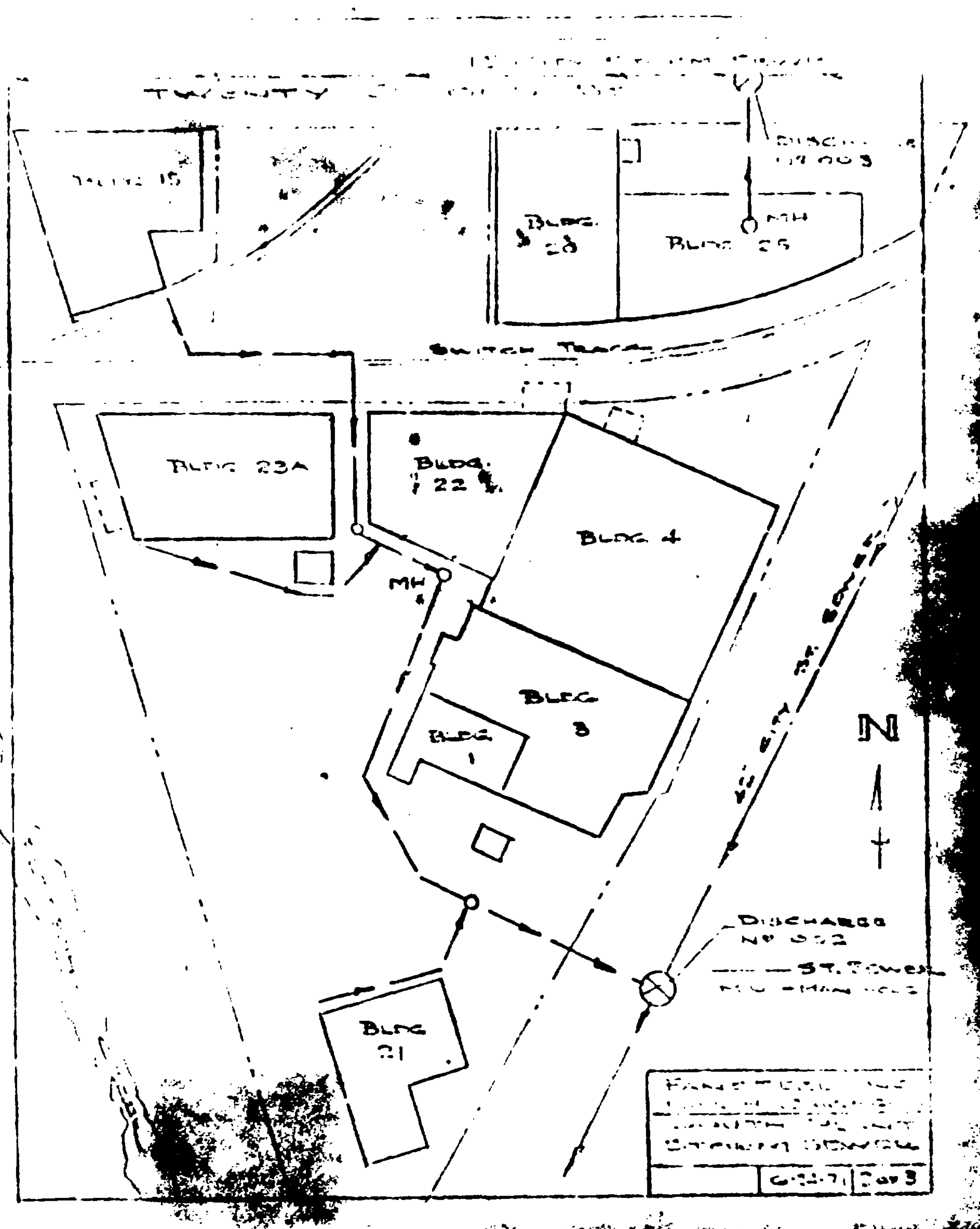
20. Date discharge will begin.

21. [illegible]

Rinse water [illegible]

Process [illegible]


MET
MET
MH
GROUND ST.
CITY SEWER


BLDG 15
BLDG 26
MH
BLDG 25
SWITCH TRACK
BLDG 23A
BLDG. 22
BLDG 4
MH
BLDG 3
BLDG 1
N
BLDG 21
DISCHARGE
ST. SEWER

PERMIT NO. [illegible] 34-200 DATE [illegible]

PROJECT LOG NUMBER [illegible]

SUBJECT: [illegible] INCORPORATED—Industrial Pretreatment [illegible]
([illegible]—North Chicago—Lake County)

[illegible], Incorporated
[illegible] Place
[illegible], Illinois

[illegible] is hereby granted to [illegible] to operate [illegible] control facilities described as follows: [illegible] gallon/day [illegible] pretreatment system which includes a [illegible] gallon [illegible] tank, caustic neutralization system, flocculator-clarifier, [illegible] of sodium hypo[illegible] directly [illegible] clarifier via the flocculating [illegible] system and a centrifuge for sludge [illegible] for the removal of suspended solids (specifically heavy metals) at the [illegible] Plant of [illegible], Incorporated, [illegible] discharge to an existing sanitary sewer on [illegible] property, tributary to the [illegible] Street sewer, [illegible] to the North Shore Sanitary District's North Chicago sewage treatment plant.

The final plans, specifications and supporting documents approved by this permit were prepared by [illegible], Incorporated and [illegible] Enviro Chem Systems, Incorporated and are identified in the records of the Illinois Environmental Protection Agency, Division of Water Pollution Control, Permit Section, by the log number designated in the subject heading above. This Permit expires June 12, 197[illegible].

This Operating Permit renews and replaces Permit #[illegible] which was previously issued for the facilities permitted herein.

The standard conditions of issuance of this permit are [illegible] as follows:

[illegible] Any solids removed from the industrial pretreatment system that are not recycled must be disposed of at a site [illegible] acceptable to the Agency.

[illegible] This Permit in no way condones or accepts [illegible] actions taken by [illegible], Incorporated in construction of the pretreatment facilities and modifications thereto which were not in compliance with the Environmental Protection Act relating to the rules, regulations and requirements thereunder.

DIVISION OF WATER POLLUTION CONTROL

William H. Busch

William H. Busch
Manager, Permit Section

File
[illegible] Permits Chicago
[illegible] Permits Springfield

GENERAL DESCRIPTION

SOUTH PLANT TREATMENT SYS[illegible] RECEIVED

3[illegible]

This system described herein is a reflection of [illegible]
Proposal for Settlement submitted jointly with the [illegible]
tion Control Board June 24, 1972, (Docket [illegible]
by Fansteel letter to the Pol'ution Control Board [illegible]
31, 1972. The program was approved by the Board [illegible]
A copy of the Order of Board is included as Exhibit B.

Our objective is to provide treatment to achieve the sanitary sewer standards of Technical Release 20-22 and discharge to the North Shore Sanitary District. The Monsanto Enviro-Chem Division, who has acted as technical consultants to Fansteel for the past year, has been engaged to perform the system design. Fansteel is designing and constructing the building and will procure and install the equipment.

The system utilizes continuous alkaline precipitation and is essentially that recommended by Monsanto as Alternate III in Exhibit C. The influent to the system consists of acid and caustic cleaning rinses, nickel plating rinses and rinse water from tumbling and deburring operations. The nature of the untreated wastes and the degree of treatment to be afforded by the system are described in Exhibits C, D and E. Design is based on an average load of 11,000 gallons per day and a maximum load of 17,000 gallons per day on a two shift (16 hours) per day, five day per week basis.

Basic elements of the system include a 12,000 gallon equalizing tank, a caustic neutralization system, flocculator-clarifier, a carbon adsorption filter, and centrifuge for sludge dewatering. An engineering flow diagram is shown in Exhibit F. Specifications for piping and the major items of equipment are shown in Exhibit G. The system will be housed in a new prefabricated metal building adjacent to the south wall of Building 23-A. The foundation plan and proposed equipment layout are shown in Exhibits H and I.

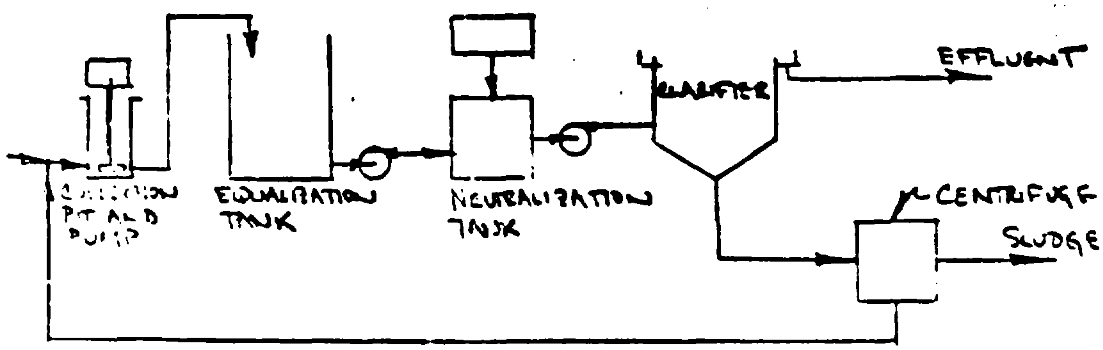
→ The treated effluent will be piped through an existing trench under 22nd Street to our North Plant and discharged into an existing sanitary line on Fansteel property. This scheme will permit single point monitoring at a station on the west side of our Met B building. Continuous flow and pH recording are planned and an automatic sampler will be utilized for daily composite sampling. Monitoring and sampling equipment, all either on hand or on order, are as shown in Exhibit J.

JMB:mb

December 22, 1972

EXHIBIT A

FIGURE X: ALTERNATE III CUSTOM TREATMENT PLANT



STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY

INTER-OFFICE CORRESPONDENCE

DATE: August 11, 1972

MEMO TO: Barbara Siddler, Enforcement Services Section

FROM: Lawrence S. Kolczak, Lake Michigan Surveillance Unit

SUBJECT: Fansteel's Interim Treatment Proposal

The settlement proposal by Fansteel for which the Agency recommended approval involves an effort to improve Pettibone Creek.

HISTORICAL BACKGROUND

Historically, the North Branch of Pettibone Creek was severely polluted by industrial wastes. A tool manufacturer was a source of floating and soluble oil. A cannery discharged slugs of dissolved and setteable organic waste. A foundry effluent contained oil and, occasionally, dissolved metals. The Fansteel north and south plants were sources of settleable solids, cyanide, metals, acid and caustic wastes. All of these industries discharged to the North Branch along the first one third of a mile of its length.

The tool manufacturer has ceased the discharge of oil. In late 1969, the foundry shut down. The cannery moved its operation to another state in February of 1971. This leaves Fansteel as the only known source of industrial pollution to Pettibone Creek.

BIOLOGICAL INFORMATION

Biological surveys performed in 1968 and 1970 (included in the referral) have indicated detrimental effects from the Fansteel discharges to Pettibone Creek. The turbid wastes from the north plant and the toxic wastes from the south plant affect the north branch and main trunk of the stream to its mouth at the Great Lakes Naval Training Center Harbor. The reaches of the creek from the south plant outfall to and somewhat beyond Sheridan Road are best described as a biological desert. The creek does not fully recover before it terminates at the harbor.

ADVANTAGES OF PROPOSED INTERIM MEASURES

Biological Improvement - Besides the obvious elimination of the potential health hazard of having toxic wastes flowing down an open waterway there is a definite opportunity to bring about immediate improvement of a stream. Since Fansteel is the last known source of toxic wastes to the creek, there should be natural recovery when the pollution ceases. The south branch of the creek currently supports an abundance of aquatic life including tadpoles and fish. With the elimination of the toxic barrier on the north branch, aquatic life forms will begin a gradual upstream migration to the reaches of stream for which they are best adapted. Also, without the toxic impact of the north branch on the main trunk of the stream, fish and their related food organisms will be able to re-establish stable communities in this area.

Water Quality - By removing the Fansteel discharges from Pettibone Creek, we will eliminate the continued violation of water quality standards for heavy metals at the Sheridan Road and Naval Training Center Harbor sampling stations. Although Lake Michigan will be the ultimate recipient of Fansteel's effluent, there will be less impact at the point of discharge if the waste is diluted by the flows to the North Chicago sewage treatment plant. Since the recreational boat harbor into which Pettibone Creek empties has a somewhat restricted degree of circulation compared to the shore water adjacent to the sewage plant outfall, there is less likelihood of waste concentration if Fansteel discharges to the sewage plant.

Public Benefit - One need only observe the servicemen and their families who fish along the harbor wall and at the mouth of Pettibone Creek. There is no such recreational use of the waters immediately adjacent to the North Chicago sewage plant outfall due to a federal rifle range which fires over the lake at that location.

EVALUATION

The Permits Section, in a report submitted to you, indicates that the overall impact of the Fansteel waste on the sewage treatment plant, particularly with hauling of waste acid and therefore part of the dissolved metals, will be slight and of hydraulic rather than a biological nature. The impact of Fansteel's waste on Pettibone Creek has been established as substantial. There are several evident advantages, outlined above, if the waste is removed from Pettibone Creek. Since the new facility at Gurnee is not scheduled for completion until Feb., 1974 and there promises to be some delay beyond that date, the agency is faced with a choice. The choice is not, as the Board implied, whether or not to slightly degrade the sewage plant effluent. The choice is whether or not to allow the continued degredation of Pettibone Creek for the two years or possibly longer that will pass before completion of the Gurnee facility.

The Board will have to decide which is the lesser of the two evils.

Lawrence S. Kolczak

Lawrence S. Kolczak, Sanitarian III

LSK:bjg
CC - Paul Gambihr
- John Forneris
- Robert Schacht
- Records Section

Copy — [illegible]
cc — [illegible]
Copy [illegible]

FOLLOW-UP SURVEY

1 - Respondent: Fansteel Incorporated
City of North Chicago

2 - Receiving waters: Pettibone Creek (Lake Michigan Basin)

3 - Date and time: October 19, 1971 - 12:05 to 12:50 P.M.

4 - Weather: Cloudy, 75°, no rain on that day.

5 - Discussions: None

6 - Names of People Present: None

7 - Facts:

Six stations were sampled in an attempt to bracket each of the two city storm sewers carrying Fansteel's wastes to Pettibone Creek. The physical observations at each of the sampling points are listed below.

A-1 Pettibone Creek twenty yards upstream from 22nd St. bridge - 12:45 P.M. The water was clear, but there was only a slight amount of flow. The surface had much thin oil trapped by obstructions. The submerged rocks and litter had a substantial growth of algae. No odor was detected.

B-1 Effluent from outfall of storm sewer under 22nd Street bridge. (Fansteel North Outfall) 12:50 P.M. The discharge was clear and odorless.

A-2 Pettibone Creek twenty yards upstream from the Fansteel south storm sewer - 12:25 P.M. The water was clear, odorless and free of floatage.

B-2 Discharge from Fansteel south storm sewers - 12:05 P.M. The discharge was murky and grey. There was some suspended grey tissue-like material in the discharge. Several small slicks of thin oil were observed in the liquid and an earthy odor was detected. The water of Pettibone Creek was turbid and grey in the vicinity of the outfall.

D-1 Effluent from Fansteel's south plant to the 48" storm sewer which ultimately discharges to Pettibone Creek - 12:35 P.M. The sample was clear, odorless and free of floatage.

C-1 Pettibone Creek one hundred yards downstream from the Fansteel south storm sewer outfall - 12:15 P.M. The water was clear and odorless and no suspended material or floatage was noted.

[signature]
Lawrence S. Kolczak, Sanitarian, Chicago

LSK:arl

WATER QUALITY SURVEILLANCE

[illegible] Creek (Lake Michigan Basin) DATE October 19, 19[illegible]

Lawrence S. Kolerski [illegible] WEATHER Cloudy, [illegible]°

	A2	[illegible]	A3	[illegible]	[illegible]	[illegible]
	Rattlebone Creek 150 yd Upstream of 22nd St. Bridge	Discharge from [illegible] North Outfall under 22nd St. Bridge	Rattlebone Creek [illegible] yd Upstream [illegible] South Storm Sewer Outfall	Discharge from [illegible] South Storm Sewer Outfall	Effluent of [illegible] Outfall to Storm Sewer	Rattlebone Creek 100 yd Downstream [illegible]
FIELD OBSERVATIONS						
Water Temperature °F						
Field D.O. mg/l						
pH	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Free From Settleable Solids	Yes	[illegible]	[illegible]	No	Yes	Yes
Free From Floating Oil	[illegible]	[illegible]	[illegible]	No	Yes	Yes
Free From Color or Odor	Yes	[illegible]	[illegible]	No	Yes	Yes
BACTERIA						
Coliform/100 ml	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
Fecal Strep. /100 ml	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
Fecal Coliform /100 ml	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
WATER QUALITY						
Turbidity	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
Spec. Conductivity	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
TDS mg/l	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
Chloride mg/l	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
Sulfate mg/l	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
Total Susp. Solids mg/l						
C.O.D. mg/l	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
Alkalinity mg/l	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
Hardness mg/l	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
Nitrate - NO_3 mg/l	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
Total Plankton						
Ammonia - N mg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total Phosphate mg/l	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
[illegible] (Synthetic) mg/l	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
[illegible] mg/l	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	—	[illegible]
[illegible] mg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] mg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]ALS						
Iron mg/l	0.2	0.02	[illegible]	[illegible]	[illegible]	0.2
Manganese mg/l				[illegible]		
Copper mg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Cadmium mg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lead mg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Nickel mg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Zinc mg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Chromium (Hex) mg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Chromium (Tri) mg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] mg/l						
[illegible] mg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Sp file

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY

INTER-OFFICE CORRESPONDENCE

RECEIVED
SURVEILLANCE SECTION
APR 24 1972
ENVIRONMENTAL PROTECTION AGENCY
STATE OF ILLINOIS

DATE: April 13, 1972

MEMO TO: Robert Schacht

FROM: Wallace Matsunaga

SUBJECT: FANSTEEL, INC., North Chicago, Illinois

On March 23, 1972, I made a routine sampling visit to Pettibone Creek in North Chicago to obtain stream samples for water quality determination.

While sampling at the 22nd Street WQ station, I observed a chalky-white discoloration in the creek downstream from 22nd Street. This was at approximately 11:40 a.m. Upon closer inspection, I noticed that the creek bottom at this point was coated with a fine, light purple deposit.

Following this inspection, I proceeded to the north side of the 22nd Street bridge, where a Fansteel outfall discharges into Pettibone Creek. At this location, I observed a chalky-white flow discharging from the Fansteel outfall. This discharge had a slight chemical odor. I collected samples from this outfall for analysis at approximately 12:05 p.m.

The creek upstream from this outfall appeared a light yellowish-green (the attached pictures indicate the color of the creek upstream from the Fansteel north outfall, the actual discharge and the condition of the creek downstream from the outfall).

Subsequent to my observations and sampling, I attempted to see Mr. Jack M. Beyrer, Assistant to the General Manager, Fansteel Electronic Products Division, who is the responsible environmental control officer, in an effort to track down the color in the creek. I was informed that Beyrer was out to lunch.

I returned to the plant at 1:20 p.m. and met with Beyrer. When I informed Beyrer of my observations at the creek and inquired whether there were any operational difficulties, he related that the color was most probably from the acid neutralization tank. According to Beyrer, all spent acids within the Fansteel complex are transported to a mixing tank located at the north plant where the acid wastes are neutralized with lime slurry. This tank is equipped with an automatic pH monitor.

During our inspection of this tank, I observed that as the lime was fed into the tank, the liquid wastes within the tank took on the chalky-white appearance of the discharge I had observed earlier at the 22nd Street outfall.

Beyrer took the occasion of my visit to show me the south plant which he indicated has undergone several physical changes in order to reduce chances of contamination. Among other things, strict procedures have been instituted in the cyanide processing area to reduce cyanide contamination. All copper cyanide, silver cyanide and other cyanide-related materials and equipment are not allowed to leave this area of the plant. A new cement floor has been laid sloping away from the rest of the plant processing area. Despite these efforts, Beyrer indicated that cyanide contamination of floor drain wastes is a continuing problem.

Floor drain wastes in the rest of the plant is channeled to a common point to facilitate monitoring efforts.

Beyrer related that the Agency's enforcement action came as a complete surprise to Fansteel inasmuch as they have been in regular communications with the Agency. He also expressed interest in the Agency's composite sampling data.

The attached sheet summarizes the laboratory results from the Agency's sampling of Fansteel and Pettibone Creek.

Wallace O. Matsunaga

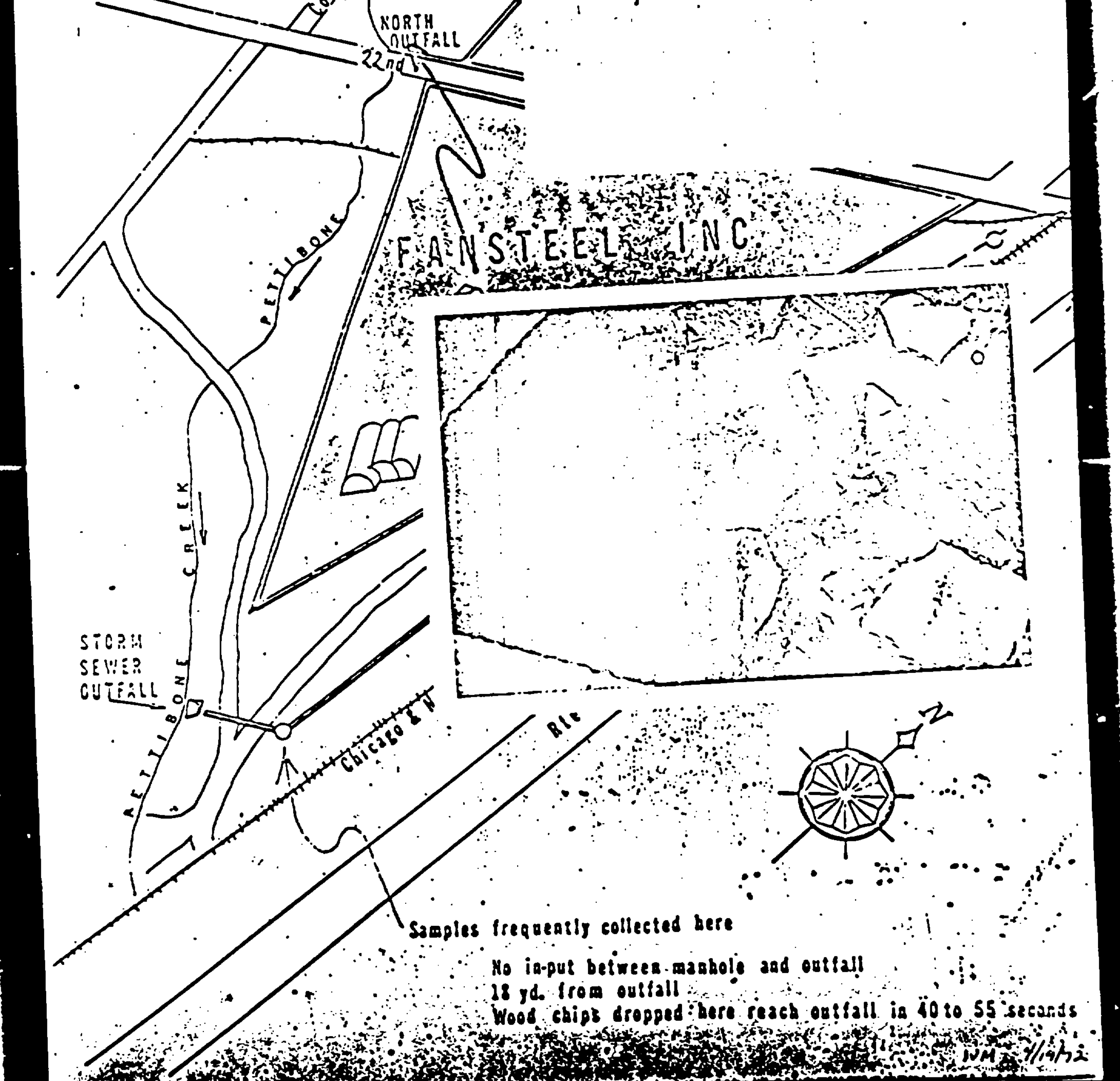
Wallace Matsunaga, Sanitarian II

WM:bjg

CC: J. J. Forneris

original sketch prepared by L. Kolczat for Fansteel legal referral

View at Pettibone Creek immediately upstream from Fansteel's north outfall. The chalky-white discharge from this outfall is visible at the left edge of the picture.



WM 7/19/72

WATER QUALITY SURVEILLANCE

STREAM: Fansteel, Inc. / Pellitone Creek   DATE: March 28, 1972

COLLECTOR: W. Matsunaga   WEATHER: Overcast, 30's

	A-1	B-1	C-1	B-2	C-2	C-3
	Pellitone Creek @ B.J.R. Rd	Fansteel North Outfall	Pellitone Creek @ 22nd St.	Fansteel South Outfall	Pellitone Creek @ Sheridan Rd.	Pellitone Creek @ Kellogg Rd
LAB NUMBER	E 17780	E17775	E17579	E17591	E17578	E17577
FIELD OBSERVATIONS						
Water Temperature °F	37	53	50	50	40	51
Field D.O. mg/l	5.0	—	6.0	—	5.0	12.0
pH	8.0	10.0	8.4	2.2	8.4	8.6
Free From Settleable Solids	Yes	Yes	Yes	Yes	Yes	Yes
Free From Floating Oil	Yes	Yes	Yes	Yes	Yes	Yes
Free From Color or Odor	Yes	No	No	No	Yes	Yes
BACTERIA						
Coliform/100 ml						
Fecal Strep./100 ml						
Fecal Coliform/100 ml	—		—		—	—
WATER QUALITY						
Turbidity	5	220	40		13	13
Spec. Conductivity						
TS/MM mg/l	1002	366	684		750	944
Chloride mg/l						
Sulfate mg/l						
Total Susp. Solids mg/l		264	81	2		
C.O.D. mg/l	35	32	25		26	13
Alkalinity mg/l						
Hardness mg/l						
Nitrate - NO_3 mg/l	1.5	21.6	7.3		4.5	1.3
Total Plankton						
Ammonia - N mg/l	0.47	42.25	10.6		10.0	1.4
Total Phosphate mg/l	0.35	0.14	0.23		0.31	0.072
MBAS (Syndets) mg/l						
Flouride mg/l						
Phenol ppb						
Cyanide mg/l		0.01		0.04		
Calcium, mg/l		61.5	60.2			
HEAVY METALS						
Iron mg/l Total/Dissolved	0.1/.05	.41/.04	.2/.04	56/.26	.5/0.10	.3/.04
Manganese mg/l		0.04	0.10			
Copper mg/l	0.0	0.16	0.07	3.75	0.16	0.04
Cadmium mg/l		0.018	0.0	0.029	0.0	
Lead mg/l		0.11	0.0	0.56	0.0	
Nickel mg/l		0.0	0.0	4.7	0.2	
Zinc mg/l		0.26	0.4	20.2	0.2	
Chromium (Hex) mg/l		0.0	0.0		0.0	
Chromium (Tri) mg/l		0.0	0.0		0.0	
Barium mg/l						
Arsenic mg/l						
RADIOACTIVITY						
Alpha mmc/l						
Beta mmc/l						

Circled values exceed TR 20-22 limits

ENVIRONMENTAL PROTECTION AGENCY — DIVISION OF WATER POLLUTION CONTROL

E17980 MAR2872

#17

WATER QUALITY AND WASTE TREATMENT WORKS EFFLUENT SAMPLING FORM

Sample collected by: W. McTamney
Location of sampling point: E.J. + E. RR
Basin: Lake Michigan
Sub-basin (if none enter "direct"): Pettibone Creek
Tributary:
Send original of results to: Lake Michigan
Sub-basin office: ☑ Performance Measurement Section, Springfield
Send copy of results to: Section, Springfield

Card col.	Form No. 1	Card col.	Form No. 2	Card col.	Form No. 3
2-5	QA — Basin code	6-7	04 — Plant or station no.	8-10	— FIPS county code (use only for PL)
11-17	C017980 Lab. ID no.	11-17	C017980 Lab. ID no.	11-17	C017980 Lab. ID no.
18	5 Sample type code (see list below)	18	5 Sample type code	18	5 Sample type code
19-20	72 Year	19-22	Arsenic 01002	19-23	Planktonic
21-22	03 Month	23-25	Barium 01007	24-26	Fluoride 00951
23-24	28 Day	26-28	Boron 01022	27-30	Chloride
25-26	11 Hour (nearest)	29-32	Cadmium 01027	31-34	Sulfate as SO4
27	A Time of day (A,P,M)	33-35	Chromium (hex) 01032	35-38	Total sulfur
28-30	39 Water temperature (deg. F) 00011	36-38	Chromium (tri) 01033	39-42	Oil
31-33	5.0 Field D.O. 00300	39-41	Chromium (total) 01034	43-46	M.B.A.S. 38260
34-36	8.0 pH (units) 00400	42-45	0.0 Copper 01042	47-50	Carbon chloroform extract
37-39	.35 Tot. phosphorus 00665	46-49	Cyanide 00720	51-54	5 Turbidity units 00076
40-43	Ave. B.O.D. 00310	50-53	0.1 Iron (total) 01045	55-58	Residue on evap. 00500
44-47	35 C.O.D. 00340	54-56	0.05 Iron (dissolved) 01046	59-62	Volatile susp. solids 00535
48-51	Phenols 32730	57-60	Lead 01051	63-65	Color (units) 00080
52-56	LAB. ACCID. Fecal coli. (No./100ml) 31616	61-63	Manganese 01055	66-68	Hardness 00900
57-61	0.27 Amm. N 00610	64-66	Mercury micrograms/l 71900	69-71	Alkalinity 00410
62-65	1.5 Nitrate / Nitrite 00630	67-69	Nickel 01067	72-74	Total acidity
66-68	N.C. Organic N 00605	70-72	Selenium 01147	75-77	Free acidity
69-71	Total N 00600	73-75	Silver 01077		Other tests required — Result
72-76	1002 T.D.S./E.C. 00515	76-78	Zinc 01092		
77-80	Total susp. solids 00530				

RECEIVED Surveillance Unit

All results expressed as mg/l except where otherwise stated.

Physical observations and comments (abnormal color, odor, floating matter, oil sludge, turbidity, weather, location of sampling point):

Environmental Protection Agency
State of Illinois

Sample type codes:
A = Domestic waste only
C = Industrial waste only
? = Mixed domestic & industrial waste
5 = Stream, lake, or receiving water quality
7 = Mine drainage
8 = Other or type unknown

Sign below for effluent sample
Transported by:
Received by: Time:
Transported by:

For laboratory use only
Sample received by: Am
Date rec'd: 3-28-72 Time rec'd: 3:15
Date analyses completed: 4-6-72
Date results forwarded: APR 10 1972
Total tests requested: 12 Tests run: 11
Lab section: Chicago Supervisor: JM

= 11

DIVISION OF WATER POLLUTION CONTROL

SPECIAL ANALYSIS FORM   E17975 MAR28'72

Time collected: 12:15 PM   Sub-Basin: Lake Michigan

Date Collected: March 28, 1972   Collector: W. Matsunaga

Facility Name / Facility Number / File Town: Fansteel, Inc. North Outfall   North Chicago

Stream Code: Pettibone Creek

Source of Sample (Exact Location): Fansteel North Outfall under 22nd Street Bridge

Field Observations, Remarks: Chalky colored discharge. Slight chemical odor
T = 52° F

	Arsenic		Coliform/100ml		BOD
	Barium		Fecal Coliform /100ml	32	COD (R)
	Boron		Fecal Strep /100ml	366	TS/RO
0.018	Cadmium		Algae (Total)	264	Susp. Solids
0.16	Copper	40.25	Ammonia (N)		Vol. Susp. Sol.
0.0	Chromium (Tri)		Organic Nitrogen (N)	10.0	pH
0.0	Chromium (Hex)	21.6	Nitrate + Nitrite	220	Turbidity
0.46	Iron (Total)	0.14	Phosphorus (P)		Hardness
0.04	Iron (Dissolved)		Chloride		Alkalinity
0.11	Lead		Fluoride		Total Acidity
0.04	Manganese		Sulfate		Free Acidity
	Mercury	NO BOTTLE	Cyanide		Oil
0.0	Nickel		MBAS	67.5 Calcium	Other (Specify)
	Selenium		Phenol		
	Silver				
0.26	Zinc				

RECEIVED
CHICAGO OFFICE
APR 10 1972
ENVIRONMENTAL PROTECTION AGENCY
STATE OF ILLINOIS

Transported by: W. Matsunaga
Received by:
Transported by:
Received by:

Lab number: 17975   Rec'd by: [illegible]
Date sample received: 3-28-72   Time: [illegible]
Date analyses completed: 4-6-72
Date results forwarded: 4 [illegible]
Total tests requested: 20   Tests run: [illegible]
Chicago

F 11

DIVISION OF WATER POLLUTION CONTROL

B003973

SPECIAL ANALYSIS FORM

Time Collected ______ Sub-Basin Lake Michigan 3973

Date Collected March 29, 1972 Collector W. Matsunaga

FACILITY NAME / FACILITY NUMBER / CITY TOWN

Fansteel Inc. (North Outfall) North Chicago

STREAM NAME / STREAM CODE

Pettibone Creek

SOURCE OF SAMPLE (Exact Location) Fansteel North Outfall under 22nd St. Bridge.

FIELD OBSERVATIONS, REMARKS: Chalky colored discharge, slight chemical odor.

T= 53° F.

	Arsenic		Coliform/100ml		BOD
	Barium		Fecal Coliform /100ml		COD
	Boron		Fecal Strep /100ml		TS/EC
	Cadmium		Algae (Total)		Susp. Solids
	Copper		Ammonia (N)		Vol. Susp. Solid
	Chromium (tri)		Organic Nitrogen(N)		pH
	Chromium (hex)		Nitrate + Nitrite		Turbidity
	Iron (Total)		Phosphorus (P)		Hardness
	Iron (Dissolved)		Chloride		Alkalinity
	Lead		Fluoride		Total Acidity
	Manganese		Sulfate		Free Acidity
	Mercury	0.01	Cyanide		Oil
	Nickel		MBAS		Other (Specify)
	Selenium		Phenol		
	Silver				
	Zinc				

Transported by W. Matsunaga

Received by

Transported by

Received by

Lab No. B003973 Rec'd by D.S.

Date sample rec'd MAR 30 1972 Time

Date analyses completed APR 4 1972

Date results forwarded APR 5 1972

Total tests requested 1 Tests run 1

Lab certifier Chong Supervisor GES

ENVIRONMENTAL PROTECTION AGENCY

11

DIVISION OF WATER POLLUTION CONTROL

E17979 MAR28'72

WATER QUALITY AND WASTE TREATMENT WORKS EFFLUENT SAMPLING FORM

SAMPLE COLLECTED BY	W. McKinney
LOCATION OF SAMPLING POINT	22nd Street
BASIN	Lake Michigan
SUB-BASIN (IF NONE ENTER "DIRECT")	Pettibone Creek
TRIBUTARY	
SEND ORIGINAL OF RESULTS TO:	Lake Michigan
SUB-BASIN OFFICE	☑ PERFORMANCE MEASUREMENT SECTION, SPRINGFIELD
SEND COPY OF RESULTS TO:	☐ SECTION, SPRINGFIELD

CARD COL. 1 FORM NO. 1		CARD COL. 2 FORM NO. 2		CARD COL. 3 FORM NO. 3	
2-5 BASIN CODE	QA	6-7 PLANT OR STATION NO.	03	8-10 FIPS COUNTY CODE (USE ONLY FOR ...)	
11-17 LAB ID NO.	C017979	11-17 LAB ID NO.	C017979	11-17 LAB ID NO.	C017979
18 SAMPLE TYPE CODE (SEE LIST BELOW)	5	18 SAMPLE TYPE CODE	5	18 SAMPLE TYPE CODE	5
19-20 YEAR	72	19-22 ARSENIC 01000		19-22 PLANKTON	
21-22 MONTH	03	23-25 BARIUM 01005		23-26 FLUORIDE 00950	
23-24 DAY	28	26-28 BORON 01020		27-30 CHLORIDE	
25-26 HOUR (NEAREST)	11	29-32 CADMIUM 01025	0.0	31-34 SULFATE AS SO4	
27 TIME OF DAY (A,P,M)	A	33-35 CHROMIUM (HEX) 01032	0.0	TOTAL SULFUR	
28-30 WATER TEMPERATURE (DEG. F.) 00011	50	36-38 CHROMIUM (TRI) 01033	0.0	39-42 OIL	
31-33 FIELD D.O. 00300	6.0	39-41 CHROMIUM (TOTAL) 01034	0.0	43-46 M.B.A.S. 38260	
34-36 PH (UNITS) 00400	8.9	42-45 COPPER 01040	0.07	47-50 CARBON CHLOR. EXTRACT	
37-39 TOT. PHOSPHORUS 00665	.23	46-49 CYANIDE 00720		51-54 TURBIDITY (UNITS) 00070	40
40-43 AVG. B.O.D. 00310		50-53 IRON (TOTAL) 01045	0.2	55-58 RESIDUE ON EVAP.	
44-47 C.O.D. 00340	25	54-56 IRON (DISSOLVED) 01046	0.04	59-62 VOLATILE SUSP. SOLIDS	
48-51 PHENOLS 32730		57-60 LEAD 01049	0.0	63-65 COLOR (UNITS)	
52-55 FECAL COLI. (NO./100ML) 31616	LAB ACCID	61-63 MANGANESE 01055	0.10	66-68 HARDNESS 00900	
56-61 AMM. N 00610	10.6	64-66 MERCURY MICRO-GRAMS/L) 71900		69-71 ALKALINITY 00410	
62-65 NITRATE + NITRITE N 00630	1.3	67-69 NICKEL 01065	0.0	72-74 TOTAL ACIDITY	
66-68 ORGANIC N 00605	NC	70-72 SELENIUM 01145		75-77 FREE ACIDITY	
69-71 TOTAL N 00600		73-75 SILVER 01075		OTHER TESTS REQUIRED: Calcium	RESULT 50
72-76 T.D.S./E.C. 00515	684	76-78 ZINC 01090	0.4		
77-80 TOTAL SUSP. SOLIDS 00530	81	ALL RESULTS EXPRESSED AS MG/L EXCEPT WHERE OTHERWISE STATED.			

PHYSICAL OBSERVATIONS & COMMENTS (ABNORMAL COLOR, ODOR, FLOATING MATTER, OIL, SLUDGE, TURBIDITY, WEATHER, LOCATION OF SAMPLING POINT)

RECEIVED
Lake Michigan Surveillance Unit
APR 10 1972

SAMPLE TYPE CODES:
- A = DOMESTIC WASTE ONLY
- C = INDUSTRIAL WASTE ONLY
- I = MIXED DOMESTIC & INDUSTRIAL WASTE
- 5 = STREAM, LAKE, OR RECEIVING WATER QUALITY
- 7 = MINE DRAINAGE
- 8 = OTHER OR TYPE UNKNOWN

SIGN BELOW FOR EFFLUENT SAMPLE

Environmental Protection Agency
State of Illinois

TRANSPORTED BY ____

RECEIVED BY ____ TIME ____

TRANSPORTED BY ____

FOR LABORATORY USE ONLY

SAMPLE RECEIVED BY GW

DATE REC'D 3-28-72 TIME REC'D 3:15

DATE ANALYSES COMPLETED 4-6-72

DATE RESULTS FORWARDED 4 APR 10 1972

TOTAL TESTS REQUESTED 22 TESTS RUN 21

LAB SECTION Chicago SUPERVISOR [illegible]

ENVIRONMENTAL PROTECTION AGENCY

DIVISION OF WATER POLLUTION CONTROL

E17981 MAR28'72

10

WATER QUALITY AND WASTE TREATMENT WORKS EFFLUENT SAMPLING FORM

SAMPLE COLLECTED BY: W. McTavish	LOCATION OF SAMPLING POINT: Fansteel, Inc. (South outfall @ manhole) # 0206	
BASIN: Lake Michigan	SUB-BASIN (IF NONE ENTER "DIRECT"): Pettibone Creek	TRIBUTARY
SEND ORIGINAL OF RESULTS TO: Lake Michigan	SUB-BASIN OFFICE / ☐ PERFORMANCE MEASUREMENT SECTION, SPRINGFIELD	SEND COPY OF RESULTS TO: ☑ SECTION

Form No. 1		Form No. 2		Form No. 3	
2-5 Basin code	82	6-7 Plant or station no.	01	8-10 FIPS county code	097
11-17 Lab ID no.	C017981	11-17 Lab ID no.	C017981	11-17 Lab ID no.	C017981
18 Sample type code (see list below)	E	18 Sample type code	E	18 Sample type code	E
19-20 Year	72	19-22 Arsenic 01002		19-23 Plankton	
21-22 Month	03	23-25 Barium 01007		24-26 Fluoride 00951	
23-24 Day	28	26-28 Boron 01020		27-30 Chloride 00940	
25-26 Hour (nearest)	11	29-32 Cadmium 01027	0.029	31-34 Sulfate as SO4	
27 Time of day (A,P,M)	A	33-35 Chromium (hex) 01032		35-38 Total sulfur as S	
28-30 Water temperature (deg. F) 00011	53	36-38 Chromium (tri) 01033		39-42 Oil	
31-33 Field D.O. 00300		39-41 Chromium (total) 01034		43-46 M.B.A.S. 38260	
34-36 pH (units) 00400		42-45 Copper 01042	3.75	47-50 Carbon chloroform extract	
37-39 Tot. phosphorus 00665		46-49 Cyanide 00720	NO BOTTLE	51-54 Turbidity (units) 00076	
40-43 Ave. B.O.D. 00310		50-53 Iron (total)	5.6	55-58 Residue on evap. 00500	
44-47 C.O.D. 00340		54-56 Iron (dissolved) 01046	3.86	59-62 Volatile susp. solids 00535	
48-51 Phenols 32730		57-60 Lead 01049	0.56	Color (units) 00080	
52-56 Fecal coli. (no./100ml) 31616		61-63 Manganese 01055		Hardness 00900	
57-61 Amm. N 00610		64-66 Mercury (micrograms/l) 71900		Alkalinity 00410	
62-65 Nitrate + Nitrite N 00630		67-69 Nickel 01067	4.7	72-74 Total acidity 00435	
66-68 Organic N 00605		70-72 Selenium 01145		Free acidity 00436	
69-71 Total N 00600		73-75 Silver 01077		Other tests required / Results	
72-76 T.D.S./E.C. 00515		76-78 Zinc 01092	20.2		
77-80 Total susp. solids 00530	2				

RECEIVED
CHICAGO OFFICE
APR 10 1972
ENVIRONMENTAL PROTECTION AGENCY
STATE OF ILLINOIS

ALL RESULTS EXPRESSED AS MG/L EXCEPT WHERE OTHERWISE STATED.

PHYSICAL OBSERVATIONS & COMMENTS (ABNORMAL COLOR, ODOR, FLOATING MATTER, OIL, SLUDGE, TURBIDITY, WEATHER), LOCATION OF SAMPLING POINT:

SAMPLE TYPE CODES:
- A = DOMESTIC WASTE ONLY
- E = INDUSTRIAL WASTE ONLY
- I = MIXED DOMESTIC & INDUSTRIAL WASTE
- S = STREAM, LAKE, OR RECEIVING WATER QUALITY
- T = MINE DRAINAGE
- X = OTHER OR TYPE UNKNOWN

SIGN BELOW FOR EFFLUENT SAMPLE

TRANSPORTED BY: ______

RECEIVED BY: ______ TIME ______

TRANSPORTED BY: ______

FOR LABORATORY USE ONLY

SAMPLE RECEIVED BY: Kuno

DATE REC'D: 3-28-72 TIME REC'D: 3:15

DATE ANALYSES COMPLETED: 4-6-72

DATE RESULTS FORWARDED: APR 10 1972

TOTAL TESTS REQUESTED: 10 TESTS RUN: 9

LAB SECTION: (Chicago) SUPERVISOR: [illegible]

ENVIRONMENTAL PROTECTION AGENCY — DIVISION OF WATER POLLUTION CONTROL

FOR DP

210

WATER QUALITY AND WASTE TREATMENT WORKS EFFLUENT SAMPLING FORM

SAMPLE COLLECTED BY	W. McTernan
LOCATION OF SAMPLING POINT	Fansteel Inc. (Small outfall @ Manhole)
BASIN	Lake Michigan
SUB-BASIN (IF NONE ENTER "DIRECT")	Pettibone Creek
TRIBUTARY	
SEND ORIGINAL OF RESULTS TO:	Lake Michigan
SUB-BASIN OFFICE / PERFORMANCE MEASUREMENT SECTION, SPRINGFIELD	
SEND COPY OF RESULTS TO: FOR SERVICES SECTION, SPRINGFIELD	☑

CARD COL. 1 — FORM NO. 1

2-5	QA	BASIN CODE
11-17	BO 0552	LAB ID NO.
18	E	SAMPLE TYPE CODE (SEE LIST BELOW)
19-20	72	YEAR
21-22	03	MONTH
23-24	28	DAY
25-26	11	HOUR (NEAREST)
27	A	TIME OF DAY (A,P,N)
28-30	55	WATER TEMPERATURE (DEG. F) 00011
31-33		FIELD D.O. 00300
34-36		PH (UNITS) 00400
37-39		TOT. PHOSPHORUS 00665
40-43		AVG. B.O.D. 00310
44-47		C.O.D. 00340
48-51		PHENOLS 32730
52-58		FECAL COLI. (NO./100ML) 31616
59-61		AMM. N 00610
62-65		NITRATE + NITRATE N 00630
66-68		ORGANIC N 00605
69-71		TOTAL N 00600
72-76		T.D.S./E.C. 00515
77-80		TOTAL SUSP. SOLIDS 00530

CARD COL. 1 — FORM NO. 2

6-7	01	PLANT OR STATION NO.
11-17	BO 0552	LAB ID NO.
18	E	SAMPLE TYPE CODE
19-22		ARSENIC 01000
23-25		BARIUM 01005
26-28		BORON 01020
29-32		CADMIUM 01025
33-35		CHROMIUM (HEX) 01032
36-38		CHROMIUM (TRI) 01033
39-41		CHROMIUM (TOTAL) 01034
42-45		COPPER 01040
46-49	0.04	CYANIDE 00720
50-53		IRON (TOTAL) 74010
54-56		IRON (DISSOLVED) 01046
57-60		LEAD 01049
61-63		MANGANESE 01055
64-66		MERCURY (MICROGRAMS/L) 71900
67-69		NICKEL 01065
70-72		SELENIUM 01145
73-75		SILVER 01075
76-78		ZINC 01090

ALL RESULTS EXPRESSED AS MG/L EXCEPT WHERE OTHERWISE STATED.

CARD COL. 1 — FORM NO. 3

8-10	097	FIPS COUNTY CODE (USE ONLY FOR PLANT)
11-17	BO 0552	LAB ID NO.
18	E	SAMPLE TYPE CODE
19-23		PLANKTON (NO./ML)
24-26		FLUORIDE 00950
27-30		CHLORIDE 00940
31-34		SULFATE AS SO4 00945
35-38		TOTAL SULFUR AS S 00167
39-42		OIL
43-46		M.B.A.S. 38260
47-50		CARBON CHLOROFORM EXTRACT 32005
51-54		TURBIDITY (UNITS) 00076
55-58		RESIDUE ON EVAP. 00500
59-62		VOLATILE SUSP. SOLIDS 00535
63-65		COLOR (UNITS) 00080
66-68		HARDNESS 00900
69-71		ALKALINITY 00410
72-74		TOTAL ACIDITY 00435
75-77		FREE ACIDITY 00436

OTHER TESTS REQUIRED — RESULTS

PHYSICAL OBSERVATIONS & COMMENTS (ABNORMAL COLOR, ODOR, FLOATING MATTER, OIL, SLUDGE, TURBIDITY, WEATHER, LOCATION OF SAMPLING POINT)

SAMPLE TYPE CODES:

- A = DOMESTIC WASTE ONLY
- E = INDUSTRIAL WASTE ONLY
- I = MIXED DOMESTIC & INDUSTRIAL WASTE
- S = STREAM, LAKE, OR RECEIVING WATER QUALITY
- T = MINE DRAINAGE
- X = OTHER OR TYPE UNKNOWN

SIGN BELOW FOR EFFLUENT SAMPLE

TRANSPORTED BY: W. McTernan

RECEIVED BY: ______ TIME ______

TRANSPORTED BY: ______

FOR LABORATORY USE ONLY

SAMPLE RECEIVED BY: F. Schmidt

DATE REC'D: MAR 30 1972 TIME REC'D: 9:30 PM

DATE ANALYSES COMPLETED: APR 4 1972

DATE RESULTS FORWARDED: APR 5 1972

TOTAL TESTS REQUESTED: 1 TESTS RUN: 1

LAB SECTION: [illegible] SUPERVISOR: [illegible]

ENVIRONMENTAL PROTECTION AGENCY

DIVISION OF WATER POLLUTION CONTROL

E17978 MAR28'72

#15

WATER QUALITY AND WASTE TREATMENT WORKS EFFLUENT SAMPLING FORM

SAMPLE COLLECTED BY	LOCATION OF SAMPLING POINT	
W. Matanago	Sheridan Park	
BASIN	SUBBASIN (IF NONE ENTER "DIRECT")	TRIBUTARY
Lake Michigan	Pettibone Creek	
SEND ORIGINAL OF RESULTS TO: Lake Michigan	SUB-BASIN OFFICE ☒ PERFORMANCE MEASUREMENT SECTION, SPRINGFIELD	SEND COPY OF RESULTS TO: ___ FOR SERVICES SECTION, SPRI...

CARD COL. 1 1 FORM NO. 1		CARD COL. 1 2 FORM NO. 2		CARD COL. 1 3 FORM NO. ...	
2-5	QA BASIN CODE	6-7	02 PLANT OR STATION NO.	6-10	FIPS COUNTY CODE (USE ONLY FOR P...)
11-17	C017978 LAB ID NO.	11-17	C017978 LAB ID NO.	11-17	C017978 LAB ID NO.
18	S SAMPLE TYPE CODE (SEE LIST BELOW)	18	S SAMPLE TYPE CODE	18	S SAMPLE TYPE CODE
19-20	72 YEAR	19-22	ARSENIC 01000	19-23	PLANKTON/ML
21-22	03 MONTH	23-25	BARIUM 01005	24-26	FLUORIDE 00950
23-24	28 DAY	26-28	BORON 01020	27-30	CHLORIDE 00940
25-26	11 HOUR (NEAREST)	29-32	0.0 CADMIUM 01025	31-34	SULFATE AS SO_4 00945
27	A TIME OF DAY (A,P,M)	33-35	0.0 CHROMIUM (HEX) 01032	35-38	TOTAL SULFUR 00...
28-30	40 WATER TEMPERATURE (DEG. F.) 00011	36-38	0.0 CHROMIUM (TRI) 01033	39-42	OIL
31-33	8.2 FIELD D.O. 00300	39-41	0.0 CHROMIUM (TOTAL) 01034	43-46	M.B.A.S. 38260
34-36	8.4 PH (UNITS) 00400	42-45	0.16 COPPER 01040	47-50	CARBON CHLOR. EXTRACT 32240
37-39	.31 TOT. PHOSPHORUS 00665	46-49	CYANIDE 00720	51-54	13 TURBIDITY UNITS 00076
40-43	AVG. B.O.D. 00310	50-53	0.5 IRON (TOTAL) 01045	55-58	RESIDUE ON EVAP. 00500
44-47	26 C.O.D. 00340	54-56	0.10 IRON (DISSOLVED) 01046	59-62	VOLATILE SUSP. SOLIDS 00535
48-51	PHENOLS 32730	57-60	0.0 LEAD 01049	63-65	COLOR (UNITS) 00080
52-58	LAB ACC'D. FECAL COLI. (NO./100ML) 31616	61-63	MANGANESE 01055	66-68	HARDNESS 00900
59-61	10.0 AMM. N 00610	64-66	MERCURY MICRO-GRAMS/LI 71900	69-71	ALKALINITY 00410
62-65	4.5 NITRATE + NITRITE N 00630	67-69	0.2 NICKEL 01065	72-74	TOTAL ACIDITY 00...
66-68	NC ORGANIC N 00605	70-72	SELENIUM 01145	75-77	FREE ACIDITY 00...
69-71	TOTAL N 00600	73-75	SILVER 01075	OTHER TESTS REQUIRED	RESULT
72-76	750 T.D.S./E.C. 70300	76-78	0.2 ZINC 01090		
77-80	TOTAL SUSP. SOLIDS 00530	ALL RESULTS EXPRESSED AS MG/L EXCEPT WHERE OTHERWISE STATED.			

PHYSICAL OBSERVATIONS & COMMENTS (ABNORMAL COLOR, ODOR, FLOATING MATTER, OIL, SLUDGE, TURBIDITY, WEATHER, LOCATION OF SAMPLING POINT):

SAMPLE TYPE CODES:
A = DOMESTIC WASTE ONLY
B = INDUSTRIAL WASTE ONLY
C = MIXED DOMESTIC & INDUSTRIAL WASTES
S = STREAM, LAKE, OR RECEIVING WATER QUALITY
T = MINE DRAINAGE
X = OTHER OR TYPE UNKNOWN

RECEIVED
Lake Michigan Surveillance Unit
APR 10 1972
Environmental Protection Agency

SIGN BELOW FOR EFFLUENT SAMPLE

TRANSPORTED BY ______________________

RECEIVED BY ______________________ DATE ____ TIME ____

TRANSPORTED BY ______________________

FOR LABORATORY USE ONLY

SAMPLE RECEIVED BY ______________________

DATE REC'D 3-28-72 TIME REC'D 3:15

DATE ANALYSES COMPLETED 4-6-72

DATE RESULTS FORWARDED APR 10 1972

TOTAL TESTS REQUESTED 19 TESTS RUN 18

LAB SECTION Chicago SUPERVISOR ______

ENVIRONMENTAL PROTECTION AGENCY — DIVISION OF WATER POLLUTION CONTROL

#14 E17977 MAR2872

WATER QUALITY AND WASTE TREATMENT WORKS EFFLUENT SAMPLING FORM

SAMPLE COLLECTED BY: N. [illegible]

LOCATION OF SAMPLING POINT: Great Lakes Naval Training Center

BASIN: Lake Michigan

SUB-BASIN: Pettibone Creek

TRIBUTARY:

SEND ORIGINAL OF RESULTS TO: Lake Michigan

SUB-BASIN OFFICE / PERFORMANCE MEASUREMENT SECTION, SPRINGFIELD

Card Col. (Form No. 1)		Card Col. (Form No. 2)		Card Col. (Form No. 3)	
Basin Code	02	Plant or Station No.	01	Five County Code	
Lab ID No.	C017977	Lab ID No.	C017977	Lab ID No.	C017977
Sample Type Code	5	Sample Type Code	5	Sample Type Code	5
Year	72	Arsenic 01000		Plankton	
Month	03	Barium 01005		Fluoride 00950	
Day	28	Boron 01020		Chloride	
Hour (nearest)	12	Cadmium 01025		Sulfate	
Time of Day (A.P.M.)	P	Chromium (hex) 01032		Total Sulfur	
Water Temperature (Deg. F) 00011	51	Chromium (tri) 01033		Oil	
Field D.O. 00300	10.8	Chromium (total) 01034		M.B.A.S.	
pH (units) 00400	8.0	Copper 01040	.004	Carbon Chloroform Extract	
Tot. Phosphorus 00665	.092	Cyanide 00720		Turbidity 00076	13
5 Avg. B.O.D. 00310		Iron (total)	0.3	Residue on Evap.	
C.O.D. 00340	13	Iron (dissolved) 01046	0.09	Volatile Susp. Solids	
Phenols 32730	✓	Lead 01049		Color (units)	
Fecal Coli. (No./100ml) 31616	LAB. ACCID.	Manganese 01055		Hardness 00900	
Amm. N 00610	1.4	Mercury (micrograms/l) 71900		Alkalinity 00410	
Nitrate + Nitrite N 00630	1.3	Nickel 01067		Total Acidity	
Organic N 00605	NC	Selenium 01145		Free Acidity	
Total N 00600				Other Tests Required / Results	
D.S./E.C. 00515	444	Zinc 01092			
Total Susp. Solids 00530					

ALL RESULTS EXPRESSED IN MG/L EXCEPT WHERE OTHERWISE STATED.

RECEIVED — Lake Michigan Sanitation Unit — Environmental Protection Agency, State of Illinois

PHYSICAL OBSERVATIONS & COMMENTS (ABNORMAL COLOR, ODOR, FLOATING MATTER, OIL, SLUDGE, TURBIDITY, WEATHER, LOCATION OF SAMPLING POINT):

SAMPLE TYPE CODES:
- A = DOMESTIC WASTE ONLY
- C = INDUSTRIAL WASTE ONLY
- I = MIXED DOMESTIC & INDUSTRIAL WASTE
- S = STREAM, LAKE, OR RECEIVING WATER QUALITY
- T = MINE DRAINAGE
- Z = OTHER OR TYPE UNKNOWN

SIGN BELOW FOR EFFLUENT SAMPLE

TRANSPORTED BY:

RECEIVED BY: TIME:

TRANSPORTED BY:

FOR LABORATORY USE ONLY

SAMPLE RECEIVED BY: [illegible]

DATE REC'D: 3-29-72 TIME REC'D: 3:15

DATE ANALYSES COMPLETED: 4-6-72

DATE RESULTS FORWARDED: 4 APR 10 1972

TOTAL TESTS REQUESTED: 12 TESTS RUN: 11

SUPERVISOR: [illegible]

217/782-3519

Fansteel Inc.
Fansteel Inc.
NPDES Permit No. IL0002411
Final Permit

JAN 0 9 1979

Fansteel Inc.
Number One Tantalum Place
North Chicago, Illinois 60064

Gentlemen:

Attached is the final NPDES Permit for your discharge. The Permit as issued covers discharge limitations, monitoring, and reporting requirements. The failure of you to meet any portion of the Permit could result in civil and/or criminal penalties. The Illinois Environmental Protection Agency is ready and willing to assist you in interpreting any of the conditions of the Permit as they relate specifically to your discharge.

The Permit as issued is effective as of the date indicated on the first page of the Permit. You have the right to appeal any condition of the Permit to the Illinois Pollution Control Board prior to the effective date.

Should you have questions concerning the Permit, please contact Yogesh Sheth at the telephone number indicated above.

Very truly yours,

Thomas G. McSwiggin

Thomas G. McSwiggin, P.E.
Manager, Permit Section
Division of Water Pollution Control

TGM:RER:YS:rw/sp5134a

Enclosure: Final Permit

cc: USEPA/With Enclosure
Region II/With Enclosure
Permit Section
Records Unit

NPDES Permit No. IL0002411

Illinois Environmental Protection Agency

Division of Water Pollution Control

2200 Churchill Road

Springfield, Illinois 62706

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

Reissued (NPDES) Permit

Expiration Date:	**June 30, 1981**	**Issue Date:** **Effective Date:**
Permittee:	**Fansteel Inc.**	
Facility Name and Address:	Fansteel Inc., Number One Tantalum Place, North Chicago, Illinois 60064, Lake County	
Receiving Waters:	Pettibone Creek	

In compliance with the provisions of the Illinois Environmental Protection Act, the Chapter 3 Rules and Regulations of the Illinois Pollution Control Board, and the FWPCA, the above-named permittee is hereby authorized to discharge at the above location to the above-named receiving stream in accordance with the standard conditions and attachments herein.

Permittee is not authorized to discharge after the above expiration date. In order to receive authorization to discharge beyond the expiration date, the permittee shall submit the proper application as required by the Illinois Environmental Protection Agency (IEPA) not later than 180 days prior to the expiration date.

Thomas G. McSwiggin, P.E.
Manager, Permit Section
Division of Water Pollution Control

TGM:YS:nk/sp5134a

NPDES Permit No. [illegible]

ATTACHMENT B

Effluent Limitations and Monitoring

Discharge Number(s): 001 and 002

Discharge Name(s): 001: Non-contact cooling water and storm water run-off from north side of plant.
002: Non-contact cooling water and stormwater run-off from south side of plant.

From effective date of permit until June 30, 1981, the effluent of the above discharge(s) shall be monitored and limited at all times as follows:

PARAMETER	CONCENTRATION LIMITS mg/l			LOAD LIMITS lbs/day (Kg/day)			SAMPLE FREQUENCY	SAMPLE TYPE
	30 DAY AVG.	7 DAY AVG.	DAILY MAX.	30 DAY AVG.	7 DAY AVG.	DAILY MAX.		
Flow (MGD)							1/Month	
pH	See Attachment B Continued						1/Month	Grab
Temperature	See Attachment B Continued						1/Month	Grab
Total Suspended Solids			15				1/Month	Composite

Justification

1. General Comments

(a) Fansteel, Inc. is a New York corporation having ... divisions located in 22 plants throughout the United ... This permit concerns Fansteel's plant in North Chicago.

(b) This plant employs 700 people where it manufactures among other things, electrical contacts of refractory and precious metals which serve the automotive, internal combustion ... components and electronic component markets. The ... materials consist ... of tungsten and tantalum. ... zinc, copper and ... are also used in the various ... The amounts of ... material used are listed as confidential.

(c) The plant is divided into two main areas, known as the South and North Plants.

(1) The South Plant consists of facilities which manufacture ... precious metals ... electrical and electronic components ... This plant is approximately 65 years old and deteriorated.

(2) The North Plant consists of metal cleaning operations, tungsten cutting and polishing activities, wire drawing, tube drawing, tungsten powder reduction, boiler house, and laboratories. This plant was erected in 1942 by an agency of the U. S. Government. Because the plant is used for other than its original purpose, organization of plant operations is a problem.

(d) A detailed description of the plants is contained in the ... testimony presented before the Illinois Pollution Control Board that resulted in Board Order PCB 72-... dated ... ber 28, 1972.

2. Water Volumes

(a) Intake

0.36 MGD of city water is ... plant. ... water is used for equipment cooling, ... and ... plating operations.

14·900·0194

[illegible]
per day.

[illegible] Treatment Facilities

(a) [illegible] treatment

Up to 1968 no water treatment was provided. Since [illegible] Company has made the following improvements.

(1) Modernized plant operations. Segregated proce[illegible]tions.

(2) Reduced process discharge from 1,600,000 to [illegible] per month.

(3) Reduced th[illegible]aminant discharge.

(4) [illegible] closed tanks from which the coll[illegible] scavenger.

(5) Install[illegible] three chamber 1800 gallo[illegible] to remo[illegible] settle[illegible] solids from rinsing opera[illegible]

(6) Installed an automatic pH control system.

Though the effluent has been improved during the last four years, it still violates State water quality standards.

(b) Future treatment

An agreement has been reached betweer Illinois Environmental Protection Agency, Fansteel, Inc., and the City of North [illegible]. Under this agreement the City of North [illegible] will accept industrial process wastes from Fansteel, Inc. provided the waste is pretreated. The company agreed to the following.

(1) Install a carbon absorption system at the South Plant for cyanide removal.

(2) Install equipment [illegible] effluent from North and South plants before [illegible] into the city sanit[illegible] sewer.

(3) Removal of [illegible] the pre-treatment facilities are completed.

(4) Make necessary [illegible] process waters to the City sanitary sewers.

(5) Expand and increase the sophistication of [illegible] program.

The Company plans to eliminate outfall 003. After completion of the agreement, only non-contact cooling water (0.19 MGD) shall [illegible] charged to Pettibone Creek. All process waters (0.165 MGD) shall [illegible] to the Sanitary treatment system of the City of North Chicago.

4. Effluent Limitations

The calculations for permissible effluent limitations were [illegible] average discharge water capacities submitted by the permitt[illegible] Guidelines do [illegible]t apply to this [illegible] of industry. Illinois e[illegible] or water quality stand[illegible] [illegible]lied. Because the 7-day once [illegible] ten years low flow for [illegible] [illegible]eek is zero, the Stream W.Q.S. were applied as effluent [illegible]. No dilution is available.

State water standards were applied as gross values. The loads were based on the process water discharge. However, the [illegible] load [illegible] to cooling water wa[illegible] added to the allowable discharg[illegible] load.

Allowable Discharge Load (#/day) = 8.34 X Process [illegible] X Stream Water Standards + 8.34 X Cooling Water X Intake Concentration.

Allowable Discharge Concentration (mg/l) = Allowable Discharge Load (#/day) / 0.34 X Total Discharge Water

Table I (p. 6) indicates the average values for intake, discharge, State Stream W.Q.S. and permissible discharge loads.

Comments on Conditions

[illegible]

1. Expiration Date - February 1, 1974. This date includes -

(a) 26 weeks installati[illegible] [illegible] for all North [illegible] facilities to pre[illegible] [illegible] after State Issuance [illegible].

(b) 7 weeks for State permit issuance.

- Process ... be ... North ... Sanitary ... North Chicago ... until ... facilities ... completed.

(1) ... Effluent Limits

October ..., 1973 is selected to give the permittee ... to install waste pretreatment facilities in accord ... company's agreement.

4. Implementation Schedule Provided by US EPA

Implementation Dates

- ba... taken from Illinois Poll... Co... order

North Plant	South Plant	
...	22	Weeks need for completion after State permit is issued.
7	7	Weeks for State iss...
8	8	Weeks from 12/17/72 in which State has not received permit application.
41 Weeks	37 Weeks	from 10/31/72

EQUALS 10/1/73 9/1/73

The interim disposal of spent acids is requ... by the State until adequate pretreatment facilities are ... ...

Reporting and Non-compliance

Compliance or the lack of it should be cont... reported, so a delay in schedule could be foretold and possibly avoided. This reporting on the 20th of each ... is also asked for in the Board Order.

Only parameters which violate State Water Quality Standards ... monitored.

14290001??

Attachment to JAN 26 1973 letter of transmittal to the State of Illinois

IL 070 0X3 ... 67
Justificati...

5. **Monitoring and Reporting**

All of these values presently reported to the State EPA with ... exception of temperature. Since the temperature load ... Fan... outfalls may raise Pettibone Creek more than 5°, this value ... be monitored.

Monitoring Schedule

Same as the State of Illinois' schedule.

12. **Future Connection to Municipal System**

Future connection of Fansteel's pretreated process wat... City of North Chicag... ...sured by the decision of the I... Pollution Control B... the Illinois Environmental Prot... Agency versus Fanste... ...c., and the City of North Chicago. Therefore, this section was changed to assume that the connection with North Chicago will take place. It merely asks for a copy of the executed contract as soon as Fansteel is supposed to have its facilities operating.

Prepared by: Russell J. Martin
Peter B. Spyropoulos/ekh

1 4 ? ? 0 0 ? 0 1 ? 8

50-12 RF
7/8/12 Gordon
JP 9-26-73

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY

INTER-OFFICE CORRESPONDENCE

Name of Person Completing Form: Laurence S. Kolczak

DATE: 9/12/73

Date Completed: Sept. 21, 1973

MEMO TO: Surveillance Section, DWPC

FROM: James B. Park, Permit Section, DWPC

SUBJECT: Fansteel (North Chicago) - Federal Permit Review

This Agency has been notified that the federal Environmental Protection Agency intends to permit the subject project pursuant to Section 402 of the Federal Water Pollution Control Act Amendments of 1972. Section 401 of the same Act requires State certification as part of the permitting procedure. The Act also requires public notice to solicit comment and the holding of public hearing if deemed necessary. This Agency's proposed position is to be set forth in the public notice. The purpose of this inquiry memorandum is to gather the outlined information necessary to determine this Agency's position.

Please furnish the following information on the subject project. There are a total of 3 discharges indicated in the federal permit application. A map is furnished showing the designation for each discharge and its location. Please reference each comment with the designation of the discharge being commented on.

1) Does the attached map accurately show the location and number of discharges from this facility? Yes [X] No [ ]
If no, describe discrepancies.

2) Are there any present violations of effluent or water quality standards?
Yes [X] No [ ]
If yes, describe violation.

Occasional discharge of high suspended solids from outfall 001

RECEIVED
Lake Michigan Surveillance Unit
SEP 20 1973
Envim Agency

EVERY INTER-OFFICE LETTER SHOULD HAVE ONLY ONE SUBJECT.
ALL LETTERS TO BE SIGNED . . . NO SALUTATION OR COMPLIMENTARY CLOSING NECESSARY.

PA-90-7/71

FEDERAL PERMIT REVIEW

3) Does the facility have the demonstrated capability of producing an effluent that will meet present Illinois effluent and water quality standards?
Yes ☐ No ☒

There are occassional discharges of high suspended solids and pH from outfall 001. An improvement project is in the planning stages. The improvements have been ordered by the Ill. Pollution Control Board.

4) Is the facility as it is presently operated able to meet all future effluent limitations outlined in Illinois Pollution Control Board Regulations?
Yes ☐ No ☒

The flows from outfall 002 have been diverted as of June 1973. The present discharge from this outfall is within our specifications. Outfall 001, however, has not as yet been diverted to the sanitary sewer system.
Outfall 003 was only a batch discharge which consisted of several hundred gallons a year. This process has been eliminated.

5) Please provide the date of the latest engineering report, results of latest sample taken and last three monthly operation reports. Also provide data of last Engineering Field visit and covering memorandum on it if later than the last engineering report. See Attached material

Two recent inspections Aug 16, 1973 comprehensive report
July 31, 1973

Operating reports for May, June and July, 1973.

6) Is a referral planned or have any referrals been forwarded to the Enforcement Services Section for action? Yes [X] No [ ]

If yes, provide outline of case and referral number.

A referral was filed several years ago and action was taken in 1972. Fansteel proposed a settlement which was accepted and the conditions of the agreement appear in PCB 72-76 (Oct 31, 1972). Fansteel has complied with the PCB order to date. Apparently there may be some delay in their planned elimination of outfall 001, but the violations at this outfall are marginal and the situation will reportedly be straightened out by May, 1974. Fansteel reports that they will be requesting a variance from that condition of the PCB order. They appear to be acting in good faith.

7) Please furnish any information on public objection to the subject discharge.

There are no recent objections to the discharges. The last ones were in 1967, and the company has since improved their treatment processes.

8) Does the Surveillance Section have any additional comments to make pursuant to this Agency's certification action on the discharge(s) to the federal Environmental Protection Agency? The three outfalls indicated on the attached maps will all be free of pollutional discharge by May, 1974. At present two of the three outfalls have been included in a recent improvement project. The status of the discharges is as follows:

Outfall 001 - Carries some contaminants which will be directed to the sanitary sewer system by May, 1974. Violations only occasional and involve suspended solids.

Outfall 002 - All contaminants have been eliminated from this discharge. Only cooling and storm water currently discharged.

Outfall 003 - Was only a small batch discharge twice per year. The contaminants have since been diverted to the new treatment system. The outfall is not used for anything but roof drains.

Please return this form to J. B. Park, DWPC Permit, Springfield within one week of receipt.

Final Permit

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION V
1 NORTH WACKER DRIVE
CHICAGO, ILLINOIS 60606

RECEIVED
MAR 5 1974
ENVIRONMENTAL PROTECTION AGENCY
DIV. OF WATER POLLUTION CONTROL
PERMIT SECTION - SPRINGFIELD
STATE OF ILLINOIS

FINAL PERMIT

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

FEB 22 1974

NPDES
#50-72

Mr. John H. Devlin
Vice President, Administration and Finance
Fansteel Inc.
Number One Tantalum Place
North Chicago, Illinois 60064

Re: NPDES Permit
No. IL 0002411

Dear Mr. Devlin:

Your application IL 070 OX3 2 720467 for a National Pollutant Discharge Elimination System (NPDES) Permit has been processed in accordance with Sections 402 and 405 of the Federal Water Pollution Control Act Amendments of 1972, (86 Stat. 816; Public Law 92-500, 33 U.S.C. 1251 et seq.).

The enclosed NPDES Permit covers your operations which discharge into the Pettibone Creek at North Chicago, Illinois. All discharges authorized from this facility shall be consistent with the terms and conditions of this Permit.

Very truly yours,

ORIGINAL SIGNED BY JAMES O. McDONALD

James O. McDonald
Director, Enforcement Division

Enclosures
Permit
Reporting Forms

cc: Dr. Richard Briceland, Director
Illinois Environmental Protection Agency, w/Permit

FINAL PERMIT AS ISSUED

Permit No. IL 0002411

Application No. IL 070 0X3 2 720467

AUTHORIZATION TO DISCHARGE UNDER THE

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Water Pollution Control Act, as amended, (33 U.S.C. 1251 et seq ; the "Act"),

FANSTEEL, INC. (NORTH CHICAGO PLANT)

is authorized to discharge from a facility located at

Number One Tanalum Place
North Chicago, Illinois 60064

to receiving waters named Pettibone Creek via the municipal storm sewer system

in accordance with effluent limitations, monitoring requirements and other conditions set forth in Parts I, II, and III hereof.

This permit shall become effective on the date of issuing authority's signature.

This permit and the authorization to discharge shall expire at midnight, September 1, 1978 . Permittee shall not discharge after the above date of expiration. In order to receive authorization to discharge beyond the above date of expiration, the permittee shall submit such information, forms, and fees as are required by the Agency authorized to issue NPDES permits no later than 180 days prior to the above date of expiration.

Signed this FEB 22 1974

James O. McDonald

Director, Enforcement Division

FINAL PERMIT AS ISSUED

Permit No. IL 0002411

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (INITIAL)

1. During the period beginning on the effective date of this permit and lasting until April 30, 1974, the permittee is authorized to discharge from outfall(s) serial number(s) 001, 002 & 003

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTIC	DISCHARGE LIMITATIONS kg/day (lbs/day)		Other Units (Specify)		MONITORING REQUIREMENTS	
	Daily Avg	Daily Max	Daily Avg	Daily Max	Measurement Frequency	Sample Type
Outfall 001						
Flow M^3/Day (MGD)	-	-	-	-	Measure during monitoring	
Suspended Solids	-	-	40 mg/l	62 mg/l	Monthly	24 hour composite
Lead	-	-	1.0 mg/l	2.0 mg/l	Monthly	24 hour composite
Nickel	-	-	-	2.0 mg/l	Monthly	24 hour composite
Zinc	-	-	1.0 mg/l	2.0 mg/l	Monthly	24 hour composite
Outfall 002						
Flow M^3/Day (MGD)	-	-	-	-	Measure during monitoring	
Suspended Solids	-	-	-	-	Monthly	24 hour composite
Oil & Grease	-	-	-	-	Monthly	Grab

For the purpose of this permit, discharge 002 is limited solely to non-contact cooling water free from process and other waste discharges. In the event that the permittee shall require the use of water treatment additives, this permit must be modified in accordance with Part II.

Outfall 003

Outfall 003 is limited to storm water only. No process or non-contact cooling water discharge shall be permitted. No monitoring is required.

The pH shall not be less than 6.0 nor greater than 9.0 and shall be monitored monthly, grab samples.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at a point representative of the discharge but prior to entry into the Municipal storm sewer system.

FINAL PERMIT AS ISSUED

Permit No. IL 0002411

PART I

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (FINAL)

2. During the period beginning May 1, 1974 and lasting until the expiration date, the permittee is authorized to discharge from outfall(s) serial number(s) 001, 002 & 003

Such discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTIC	DISCHARGE LIMITATIONS kg/day (lbs/day)		Other Units (Specify)		MONITORING REQUIREMENTS	
Outfalls 001 & 002	Daily Avg	Daily Max	Daily Avg	Daily Max	Measurement Frequency	Sample Type
Flow M^3/Day (MGD)	-	-	-	-	Measure during monitoring	
Suspended Solids	-	-	-	-	Monthly	24 hour composite
Oil & Grease	-	-	-	-	Monthly	Grab

For the purpose of this permit, these discharges are limited solely to non-contact cooling water free from process and other waste discharges. In the event that the permittee shall require the use of water treatment additives, this permit must be modified in accordance with Part II.

Outfall 003

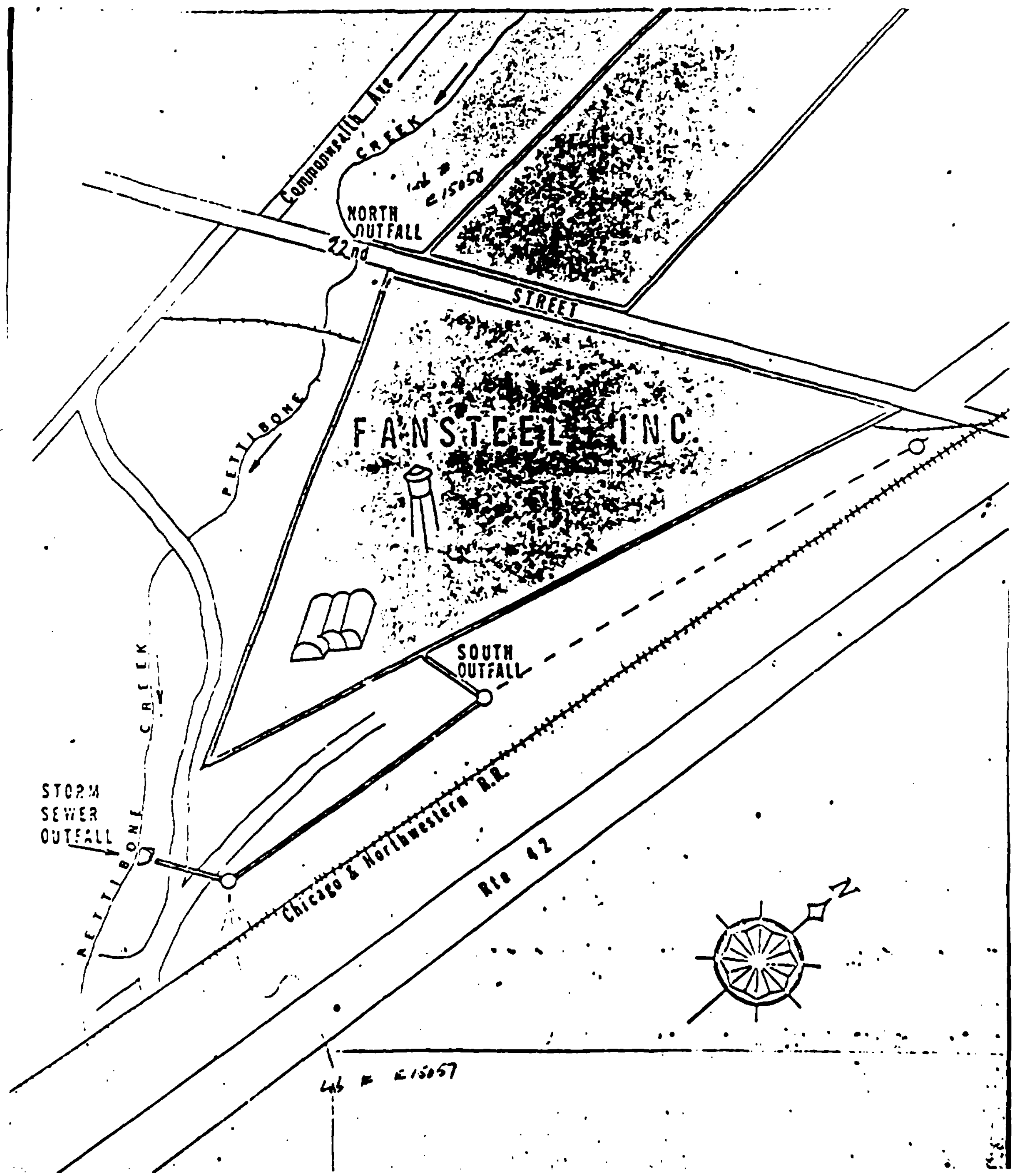
Outfall 003 is limited to storm water only. No process or non-contact cooling water discharge shall be permitted. No monitoring is required.

Intake water shall be monitored for suspended solids and oil & grease for comparison with the discharge. Monitoring frequency is monthly - grab sample.

The pH shall not be less than 6.0 nor greater than 9.0 and shall be monitored monthly, grab sample.

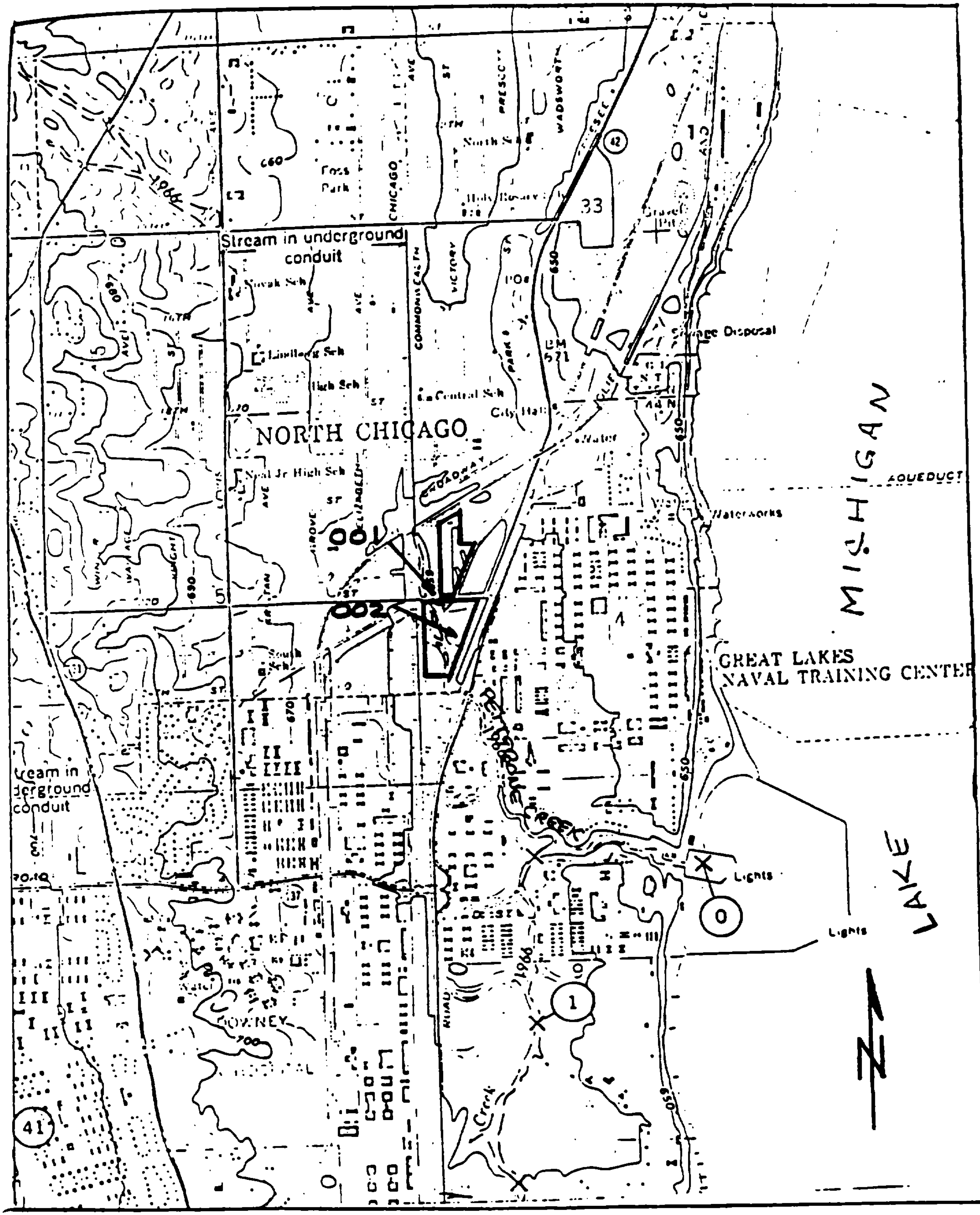
There shall be no discharge of floating solids or visible foam in other than trace amounts.

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s): at a point representative of the discharge but prior to entry into the Municipal storm sewer system.



Commonwealth Ave
CREEK
Lab # E15058
NORTH OUTFALL
22nd
STREET
PETTIBONE
FANSTEEL INC.
SOUTH OUTFALL
CREEK
STORM SEWER OUTFALL
PETTIBONE
Chicago & Northwestern R.R.
Rte 42
N
Lab # E15057

which of these boundary lines is correct

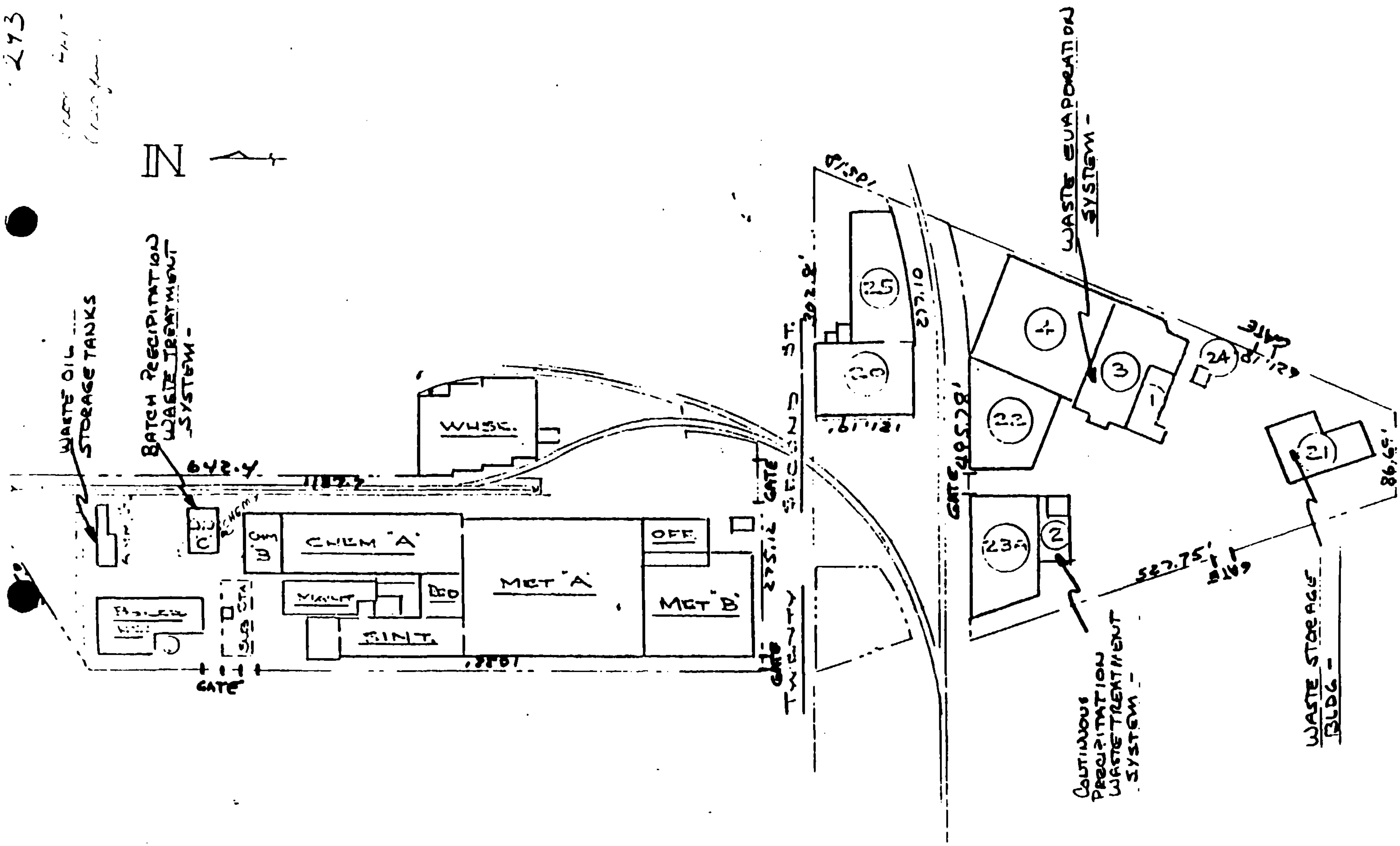


001 NORTH STORM OUTFALL
002 SOUTH STORM OUTFALL

TAKEN FROM U.S.G.S. HA-234

SCALE 1:24000

FANSTEEL INC.
NORTH CHICAGO, IL.



FANSTEEL INC

NORTH CHICAGO, IL

SCALE 1 INCH = 200 FEET

1/21/88
10:00 A.M.

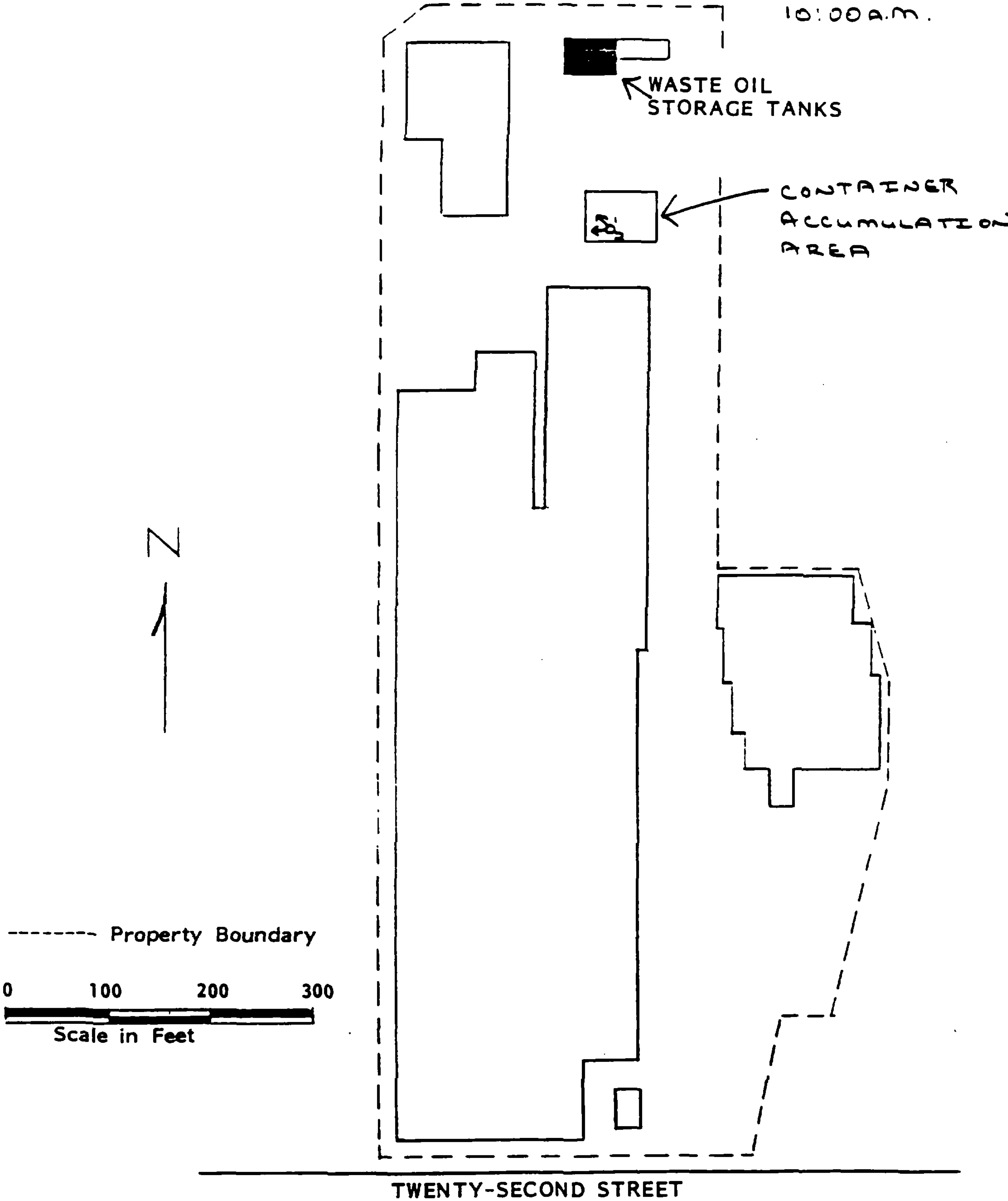


FIGURE 1-3

HAZARDOUS WASTE STORAGE LOCATION

FANSTEEL INC.
NORTH CHICAGO, IL

O→ = PHOTO

TJM

ILLINOIS POLLUTION CONTROL BOARD
November 28, 1972

ENVIRONMENTAL PROTECTION AGENCY)
)
v.) PCB 72-76
)
FANSTEEL, INC. and the CITY OF NORTH CHICAGO)

OPINION OF THE BOARD (by Mr. Dumelle)

This opinion is in support of an order entered by the Board on October 31, 1972 accepting a Stipulation and Proposal submitted by Fansteel, Inc. (Fansteel) and the Agency on June 14, 1972 as modified by a letter received October 31, 1972.

Complaint was entered by the Agency against Fansteel and the City of North Chicago on March 1, 1972 charging Fansteel with causing water pollution [Sect. 12(a) of the Environmental Protection Act]; violations of Rule 1.03(a), (c), and (d) of SWB-14; and violations of Rule 1.01 of SWB-5 (cyanide discharge) and charging North Chicago with allowing the discharge of the Fansteel contaminants thus causing water pollution. On June 14, 1972 a public hearing was held in North Chicago at which the Stipulation was presented for public comment. There was no adverse comment and in due time the Stipulation was presented to the Board.

Fansteel has two plants in North Chicago employing 700 persons manufacturing electrical contacts using precious metals among other materials. The South Plant is some 65 years old and includes processes of nickel plating, acid cleaning and tumbling and burnishing. The North Plant dates from 1942 and contains processes of metal cleaning, tungsten cutting, wire and tube drawing, tungsten powder reduction and generates effluents from the boiler house and laboratories.

Effluents from these two plants were discharged to Pettibone Creek containing settleable solids, cyanide, metals, acid and caustic wastes. Biological surveys performed in 1968 and 1970 have indicated detrimental effects from the Fansteel discharges to Pettibone Creek. The turbid wastes from the north plant and the toxic wastes from the south plant affect the north branch and main trunk of the stream to its mouth at the Great Lakes Naval Training Station Harbor. The reaches of the creek from the south plant outfall to and somewhat beyond Sheridan Road are best described as a biological desert. The creek does not fully recover before it terminates at the harbor. (EPA Statement of September 25, 1972, pp. 9-10).

The Stipulation provides and the Board has ordered that Fansteel will pretreat the South Plant effluent to permit discharge of all of its effluent to the North Shore Sanitary District as specified in Exhibit F of these proceedings within 22 weeks after an Agency permit is issued. Similarly, the Board has ordered that the North Plant pretreat its effluent in order that it may be discharged to NSSD to be done within 26 weeks after the Agency permit is issued.

In first discussing the Stipulation, the Board has two main concerns before approving it. The first concern dealt with the effects of the Fansteel effluent upon the North Chicago sewage treatment plant of the North Shore Sanitary District both as to possible upsets of the biological treatment and possible hydraulic overloading. On July 25, 1972 the Board entered an order requesting additional data from the Agency.

The Agency furnished on September 25, 1972 an extensive theoretical analysis showing that the biological treatment would not be harmed. It justified the additional hydraulic load on the plant in spite of the Board's prohibition of other new connections to it by the fact that this diversion of the Fansteel effluent out of Pettibone Creek would enable that body of water to recover and would eliminate the present health hazard of toxic wastes in the Creek.

The second concern of a majority of the Board had to do with the amount and nature of the stipulated penalty to be paid. The June 14, 1972 original stipulation provided that Fansteel would conduct certain research on the carbon adsorption treatment of cyanide at the South Plant even though not necessary to permit the effluent discharge to the North Shore Sanitary District's plant. Data on the research was deemed to be of value to the Agency (Para. C). If the expenditures for this research program did not exceed $25,000 then the difference between the figures would be paid to the State of Illinois (Para. D). The majority of the Board felt that Agency research should not be financed through, in effect, a penalty due the State. And since it was anticipated that, in fact, the research expenditures would exceed $25,000, therefore no specific penalty would accrue to the State even though damage to Pettibone Creek from water pollution had occurred.

The modified Stipulation of October 31, 1972 provides that Fansteel will pay a penalty of $20,000 to the State and will in addition perform the carbon adsorption cyanide research. The Board finds the modification entirely satisfactory and commends Fansteel for its offer to advance the waste treatment art by its research.

The City of North Chicago has filed a Motion for Summary Judgment which, in effect, would hold that it is absolved from any responsibility so far as abating pollution emanating from its sewers, as a consequence of the North Shore Sanitary District's alleged preemption of this responsibility. We find that a substantial issue of fact exists as to the role of the North Shore Sanitary District in this respect, which, itself, would preclude the entry of a summary judgment. Secondly, even if this was not so, we do not find North Chicago's contentions persuasive. The ordinance cited by North Chicago does not purport to relieve municipalities of their responsibility. The motion for summary judgment is denied. The mere co-extensive functions of a sanitary district in no way in itself relieves the city from its responsibilities so far as abating pollution from its sewers. See EPA v. City of Champaign, #71-51C, 2PCB 411, September 16, 1971; EPA v. City of Urbana, #71-365, PCB , September 6, 1972. By this holding, we are not precluding the possibility of arrangements between cities and sanitary districts, whereby a sanitary district would assume all responsibility and obligation with respect to sewage generated within a particular municipality, when such arrangement causes the sanitary district to assume this responsibility. However, in the present case, adequate proof of such an arrangement has not been made. Nevertheless, because of the basic agreement arrived at between Fansteel and the EPA, we see no reason for the imposition of a penalty against the municipality and none will be imposed.

This opinion constitutes the findings of fact and conclusions of law of the Board.

I, Christan L. Moffett, Clerk of the Illinois Pollution Control Board, hereby certify the above Opinion was adopted on the 28th day of November, 1972 by a vote of 5-0.

Christan L. Moffett

Christan L. Moffett, Clerk
Illinois Pollution Control Board

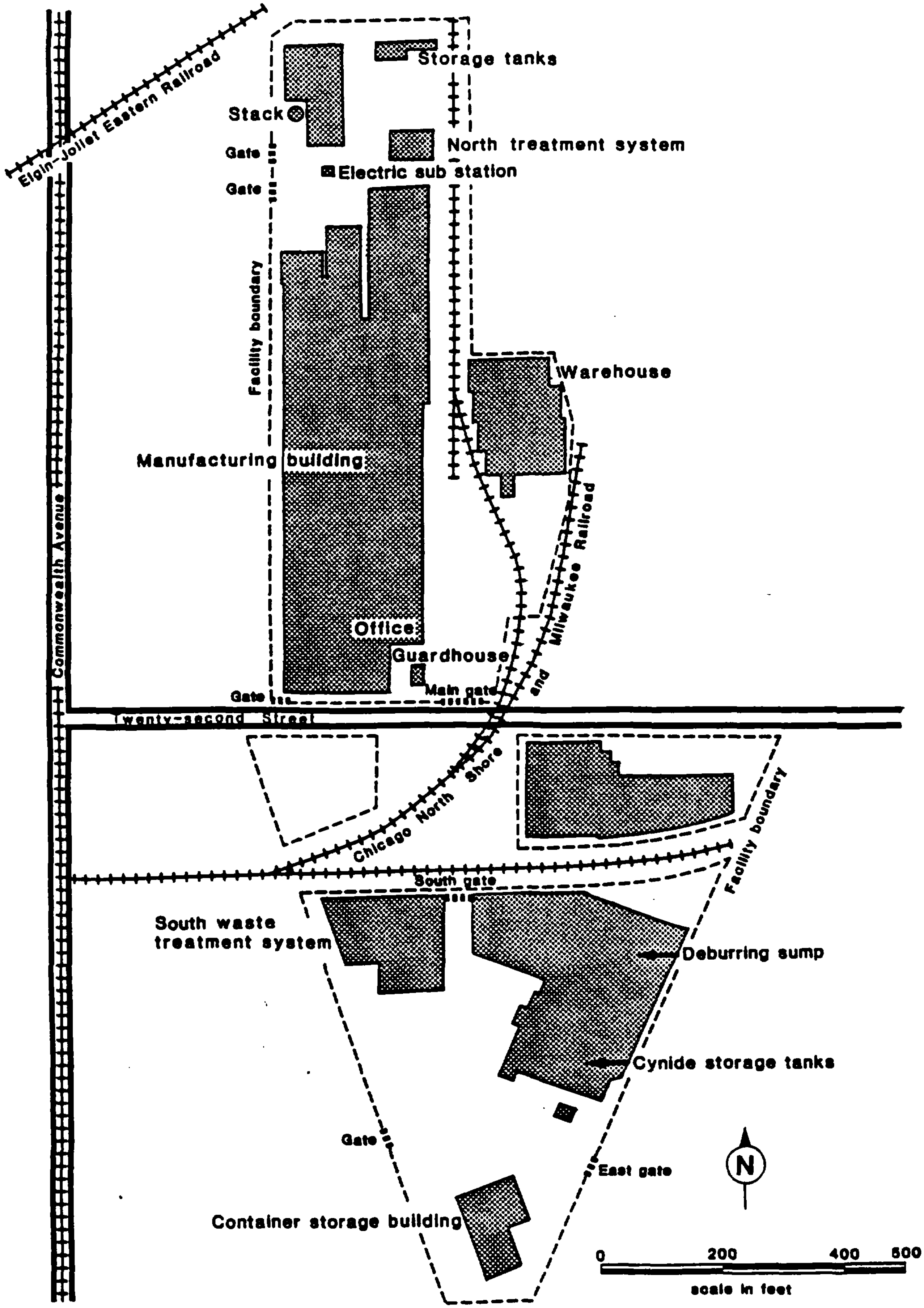


Figure 16. Fansteel buildings and structures.

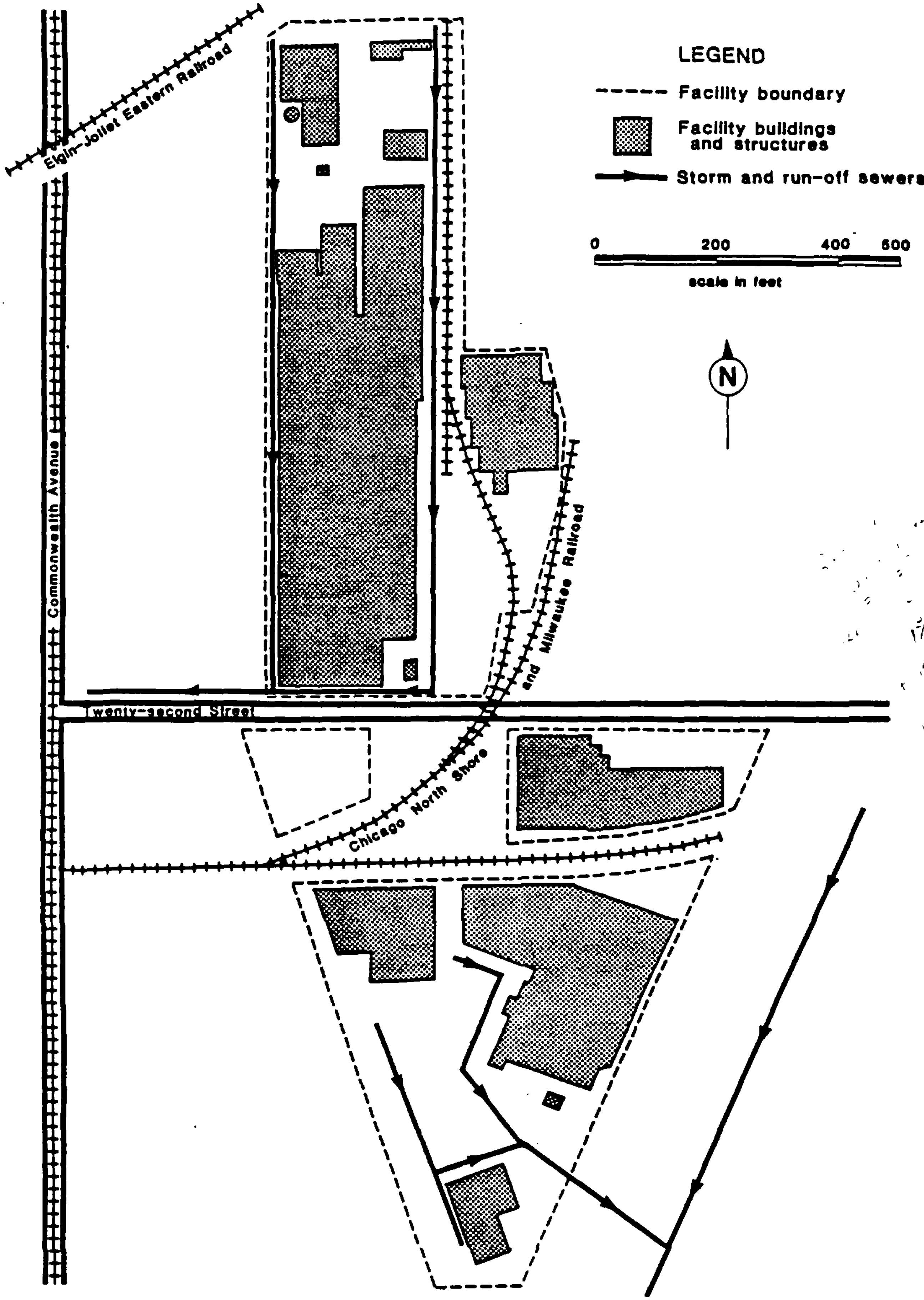


Figure 17. Sewer system.

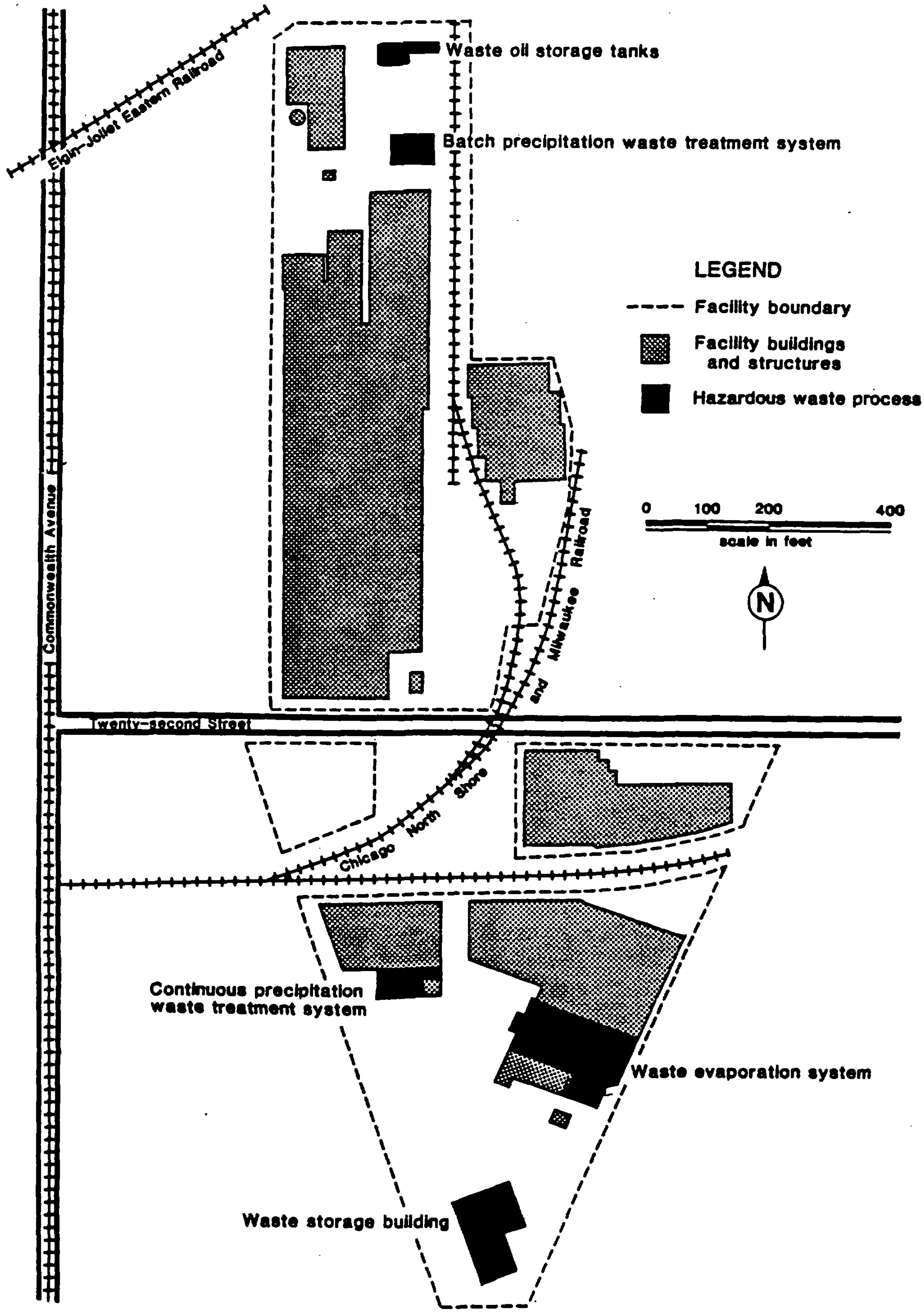


Figure 19. Location of hazardous waste operations units.